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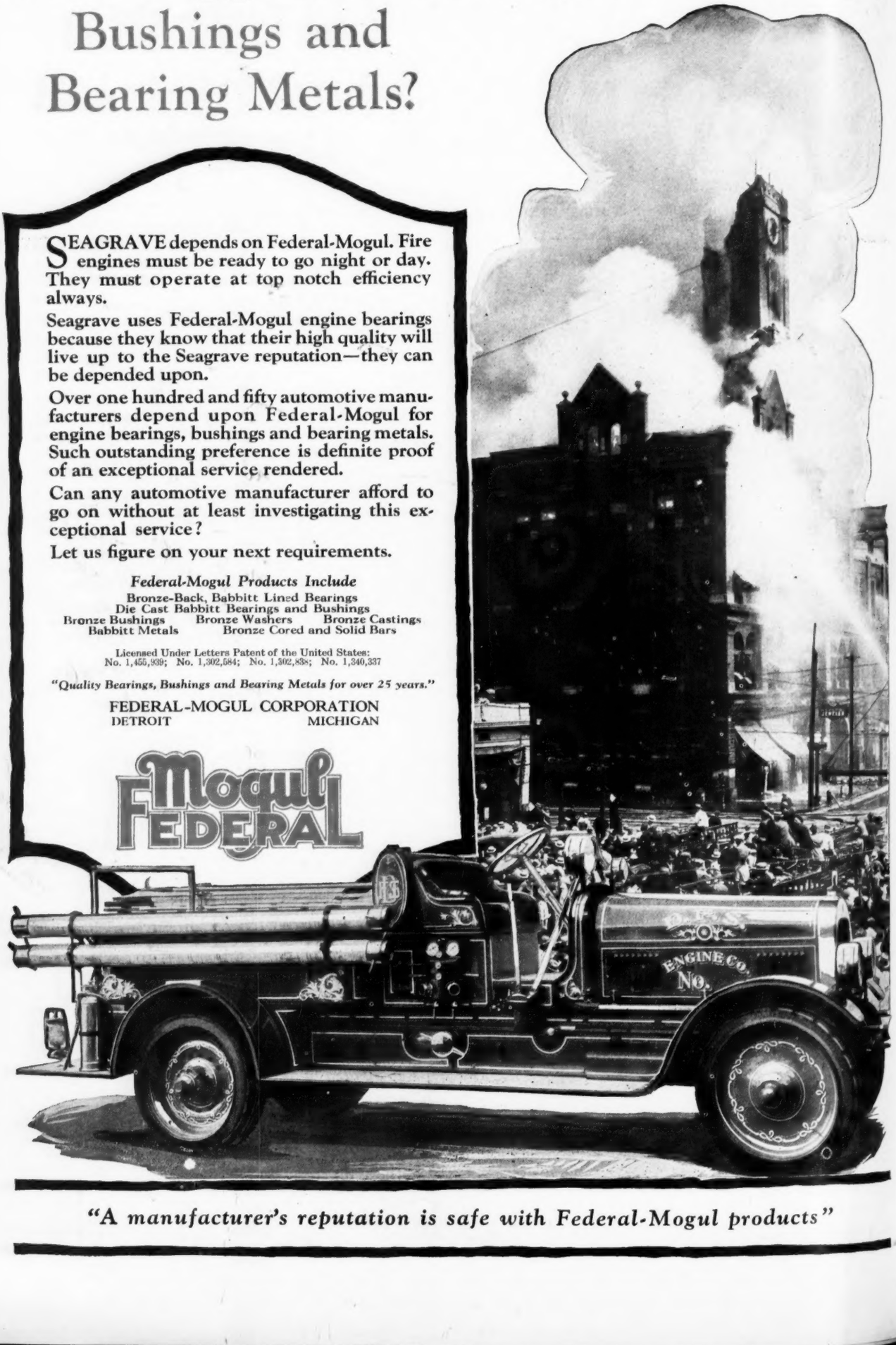

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AUTOMOTIVE INDUSTRIES
VOLUME 54 *Philadelphia, Thursday, April 8, 1926* NUMBER 14

New Factory Executive Coming—He's the *Used Car* Specialist

Eight manufacturers now have a special department or official devoted to used car problems. Nearly all companies giving dealer some form of aid

By Norman G. Shidle

"THE used car is the dealer's problem. We don't concern ourselves much with it here at the factory."

Five years ago that would have been the almost universal reply to a question asked of factory executives concerning their attitude and activities as regards used cars.

Today it still is the answer in many cases, but nearly every manufacturer is giving the used car more attention than in past years, while several factories quite definitely have accepted responsibility for the used car as a part of their own merchandising problem and are engaged in intensive and permanent work to promote better and more profitable handling of used vehicles in their dealer organization.

When it is realized that automobile retailers now have to sell 1½ times as many used cars every year as they do new cars, and when it is realized that an actual net profit accrues from only a small percentage of used car sales, the number of factories which really have gone to work on the used car situation in an organized and systematic manner seems small.

Out of 26 companies whose used car activities have just been investigated in a special survey by *Automotive Industries*, only eight may be said to have incorporated comprehensive used car activities as an integral, systematized part of their factory marketing effort. A good many of the others give more or less sporadic and casual assistance to dealers on used car matters through their regular traveling forces and through references in house organs. But four out of the group have a special department or official devoting full time to used car problems, while four more have one man at the factory a part of whose duties definitely involves used car activities.

Only eight factories out of the 26 analyzed are collecting and compiling regularly statistics concerning used car stocks and sales, the rest apparently relying on more or less general information about this phase of the dealers' condition. Those factories which already have built up rather detailed and highly useful statistical data as regards used car trends, still are working on methods of improving the accuracy and comprehensiveness of the data being gathered. In two or three cases, further definite improvement along this line is certain within the next few months.

The results of the survey properly may be considered as typical of the situation for the whole industry, since the investigation included personal visits as well as mail inquires and the 26 factories concerning

"THE used car—for many years an automotive bugbear—seems destined to be a most important factor in 1926 merchandising." That was the opening sentence of an article entitled, "Extra Effort Will Be Required to Keep Used Cars Moving This Year," which appeared in *Automotive Industries* of January 21.

That opinion has been conformed since that time by several important automotive executives and by the trend of sales and stocks in various territories.

To determine what car manufacturers were doing to meet the particularly important used car problem which appears this year, a survey of factory used car activities was made by means of personal investigation and questionnaires. Information regarding 26 factories has been procured. These factories produced 75 per cent of the passenger cars—excluding—Ford—in 1925.

This article summarizes and evaluates the factory used car activities as they are being carried on today. Some executives probably will see the situation in a different light than has the author. Comments, agreeing with or in opposition to the views expressed will be welcomed.

whose used car activities data were secured were responsible for about 75 per cent of the total passenger car production, excluding Ford, in 1925.

There are very great differences in the attitude of various factories toward the used car question as well as in the actual efforts which are being made. Some manufacturers who, up to the present, haven't done much to help move used cars from dealers' floors see the problem as an acute one and are preparing to launch efforts to help improve the situation in the near future. Those who already are carrying on extensive activities, of course, are convinced of the seriousness of the situation and for that reason are spending very considerable time and money to alleviate it.

An Executive States His Views

The chief sales executive of one of the largest producers, for example, stated his view of used car conditions something like this:

"Used car stocks today are high. We are carrying on very intensive work to help our dealers move their used car stocks as quickly as possible. We are furnishing them with ideas, we are helping them organize their own staffs to handle used cars more efficiently, we are getting out advertising and promotion literature to help them, we are traveling a large number of men who are devoting their time exclusively to used car problems. We are doing everything we can to see that dealers get rapid turnover on their used car stocks.

"We hope to be able to keep ahead of the procession for some time to come. But there isn't any doubt that the used car situation is going to get worse rather than better in the near future. *The used car is the outstanding sales problem before the automobile manufacturer today.*"

That view is typical of the ideas held by executives of several highly successful manufacturing organizations.

Opposed to it is the belief that the used car is almost entirely the dealers' problem and that the factory is concerned with it only in an indirect way. This side of the case is expressed in the statement from another important producer who says:

"It has been our policy in the past to act as a clearing house in giving our various distributing organizations and their dealers the sales methods and plans for handling the sale of used cars that have proved most successful for our various organizations."

Another manufacturer says: "We have not gone into this matter definitely," while a third writes, "We do not do a very great deal in this respect."

On no automotive marketing problem in recent years have we found so strongly divergent views of relative importance among equally prominent and responsible executives as on this used car matter. In companies which are directly competitive and which are faced with practically the same merchandising problems and situation are to be found men who very definitely "view with alarm" the used car situation and others who pass it off with the statement that "after all the used car is really the dealers' problem."

Basically speaking, it would seem that any problem which affects vitally the life and profit-making possibilities of the dealer is bound to have a very great significance to the manufacturer as well. Since the dealer has to sell 1½ or 2 times as many used cars as he does new; since he has difficulty in making a profit on his used car sales, and since his ability to absorb new cars is limited fundamentally by his ability to dispose of used cars on a reasonable basis and with a certain degree of rapidity, it seems hard to get away from the fact that the used car is a problem for the entire industry.

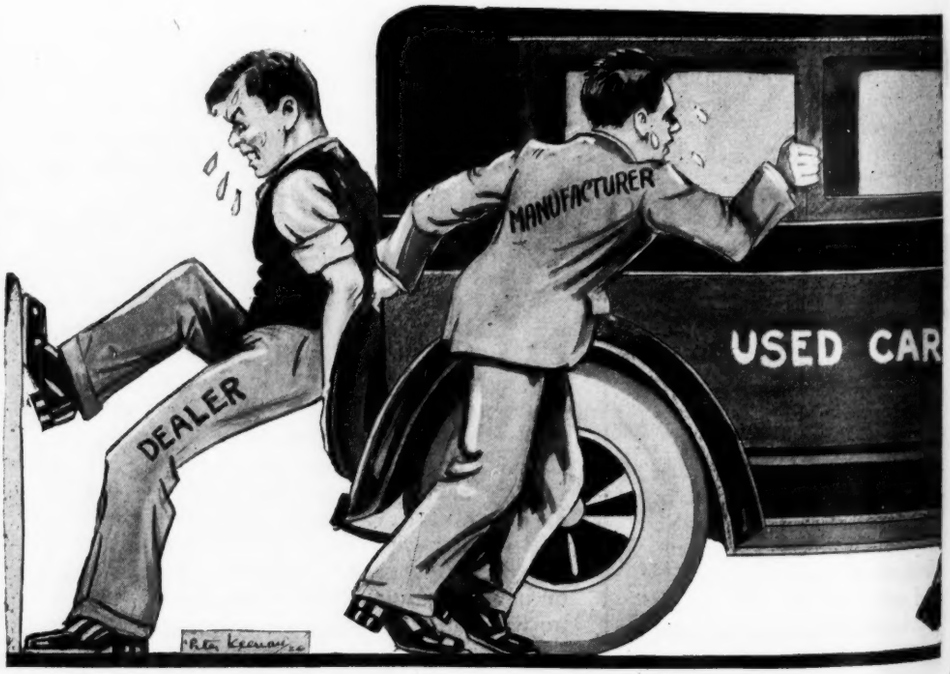
While it is true that the whole question would be solved if the dealer simply would refuse to pay more for a car in trade than it was worth and then would sell it at a price which would yield him a reasonable profit, conditions frequently make such procedure very difficult. The dealer may understand that fundamental principle in general, but may be incapable of putting into operation methods which will enable him to carry out the ideal.

Certainly the manufacturer finds this to be the usual case so far as new car selling is concerned. Ever since dealer organizations became dealer organizations, factories have been more or less active in assisting their retailers to merchandise their products. The sales promotion department or function, operating very largely on new car problems, is a part of practically every factory organization today. Sales promotion activities on new cars are organized and systematized to a considerable extent everywhere and have become an accepted part of the manufacturer's marketing plan.

Since something like 80 per cent of new car sales today are dependent upon moving of used cars, and since more used cars than new cars have to be sold every year, it would seem logical for used car problems to be given an equal place with new car problems in factory sales promotion work.

Nearly every sales promotion department today does give more or less attention to used car problems, *but only in a few cases is the used car work comprehensive and systematic.*

That is the chief distinction between the factory attitude on helping dealers to sell new cars and on help-



ing them to sell used cars in a majority of cases. The new car work usually is regular, systematic, comprehensive and basic. The used car work is more or less sporadic, casual and specific.

While comprehensive used car plans and activities are relatively rare at factories today, many manufacturers are attacking one or two specific phases of the used car problem. In several cases, for instance, factories have been emphasizing to dealers the necessity for properly reconditioning used cars before reselling them and of standing behind the reliability and quality of the used car just as they do behind that of the new vehicle. These activities have been helpful in improving this one phase of used car selling.

Other factories have strongly urged dealers to improve the quality of their used car salesmen, while others have given considerable prominence from time to time to the bad features of wild trading and the necessity for buying and selling used cars so that some net profit may result from the deal.

All of these things have been helpful, but they lack the comprehensive, systematic character of the work being done by those factories who have assigned a department, a single executive, or a part of the time of a specific executive to a permanent consideration of used car questions and activities.

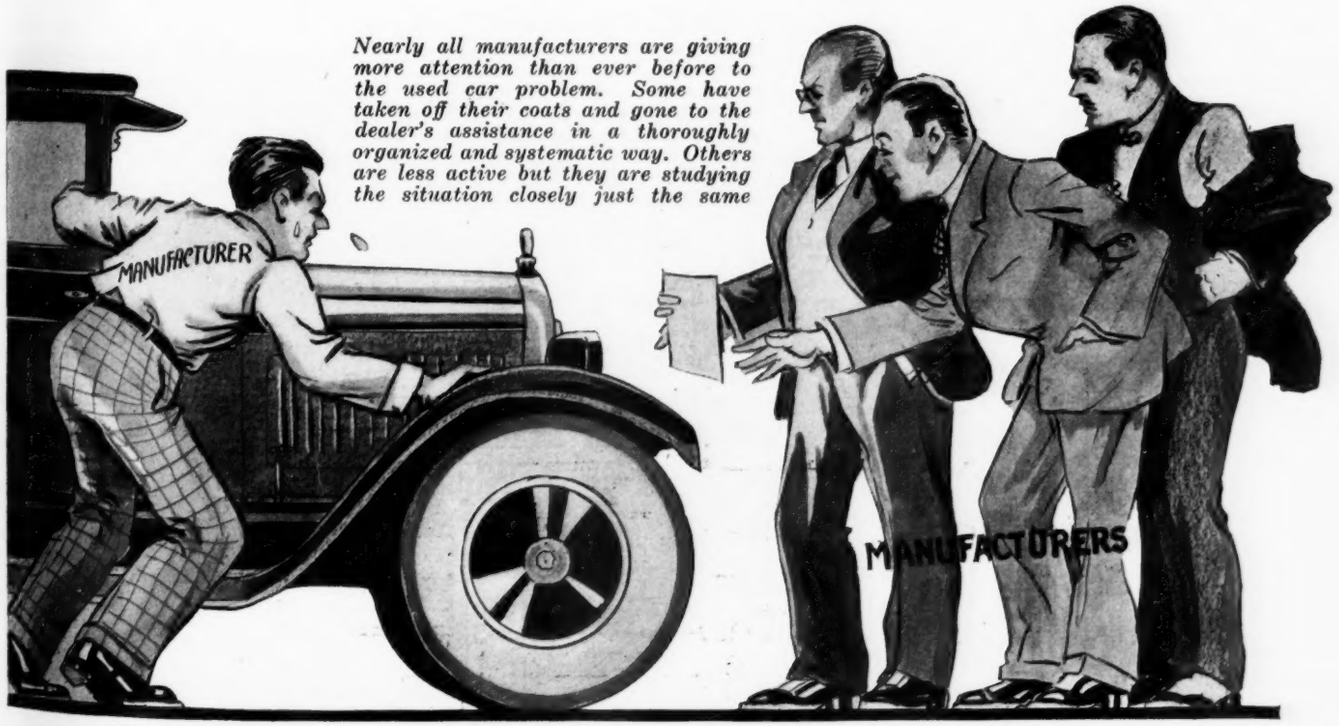
However laudable may be the effort of any factory along one or two specific used car lines, such efforts appear relatively narrow in comparison to the broad gage, intensive study and work which is being done along these lines by the few companies which have gone into the used car question "with both feet."

The differences between the used car work of various companies which should be emphasized is one of approach to the problem rather than one of method of operation. It is to be expected that large companies producing tens of thousands of cars a year would have more extensive organizations for used car work than smaller companies building a smaller number of units per year. But whether the company be large or small, it is posible to view the used car problem of its dealers in a comprehensive way; to look at the question as a whole and in its relation to the other phases of merchandising and to perform continuously activities planned in connection with it.

Those companies which are doing the most work on used cars include in their efforts a wide range of activities. Among them may be listed the following:

1. Someone at the factory whose sole function or a part of whose function is study and planning in connection with used car problems.
2. Regular and orderly compilation of statistical data concerning dealers' used car stocks, sales, etc. —used car records similar to those kept on new cars in most factories. This information forms the basis, not only for an intelligent understanding of the used car situation at any given time, but also as an aid in balancing factory production and in avoiding overstocking of new as well as used cars.
3. Factory field men specializing on used cars.
4. Regular bulletin service to dealers, designed to suggest ways and means of selling more used cars; to show dealers how to estimate properly the value of a car offered in trade; to show them how to figure resale price properly so as to provide a real as well as an apparent profit; to show them the value of properly reconditioning a car before reselling it; to help them in any way possible to stimulate turnover of used car stocks.
5. Provision of advertising copy to help sell used cars.
6. Answering questions from dealers on used car problems and sending out factory men where necessary to help organize dealers in such a way that they will be able to handle their whole used car business better than in the past.
7. Keeping the whole organization factory and dealer-conscious of the used car as an integral part of merchandising scheme.
8. Emphasizing the fact that new cars cannot be sold unless used cars are sold.
9. Collection and dissemination of used car price information.

The general aims of a comprehensive used car plan



Nearly all manufacturers are giving more attention than ever before to the used car problem. Some have taken off their coats and gone to the dealer's assistance in a thoroughly organized and systematic way. Others are less active but they are studying the situation closely just the same

are rather well outlined in the following paragraphs, which are quoted from a letter written by an executive of one company which is well in the van of progressive development along this line. He writes:

"It is easy to move one dealer's stock of used cars. A little selling effort, a little advertising and a little perspiration will do this for the individual. We are trying, however, to get at the problem more basically, and, if possible, prevent unbalanced situations in regard to used cars in our dealer organization by a program of helpful education.

System of Records and Reports

"We have set up a system of records and reports which will enable us at all times to know what our dealers' used car stocks are—what our used car sales are—and who makes the used car sales. We have developed a special advertising campaign for use by our dealers in advertising used cars.

"We find that the dealer usually is in a better position than we are to have adequate price information, because the price situation varies in different communities. We, of course, always have urged on our dealers the necessity for wisdom in planning their used car activities on a profitable basis, or if not on a profitable basis, at least on a non-loss basis.

"All of our plans are widely promoted throughout our organization by our force of sales promotion men, used car field men, and factory representatives who contact with each dealer every two or three weeks.

"Within three weeks we will know exactly how each dealer is set up to handle his used cars. Dealers will be graded according to their used car facilities and reminded of their standing in this grading at frequent intervals."

The desirability of stabilizing the used car situation throughout a dealer organization is apparent. With sales demand equal in two sections, the number of cars put into the territories by the factory in a given period might well depend upon the ability of the individual dealers to get rid of used cars taken in trade. Uneveness in dealer used car turnover inevitably leads to uneveness in factory shipments to various parts of the country.

The whole question of factory used car activity rests in the final analysis on the practical benefits which accrue from such work. Those factories which have been doing work of this kind for the longest time and on the most extensive scale are the most enthusiastic about its usefulness and profitableness. We have not found any case in which such activities once begun have been abandoned.

Regardless of how extensive factory used car activities may be in a particular case, it would seem to be apparent from analysis of existing conditions, that the used car will have to be considered as an integral part of factory sales planning, production schedules and marketing analysis in the future. A used car is involved in 75 to 85 per cent of all new car sales today and 1½ to 2 times as many used cars as new cars have to be sold by dealers every year—and the proportion bids fair to increase rather than decrease.

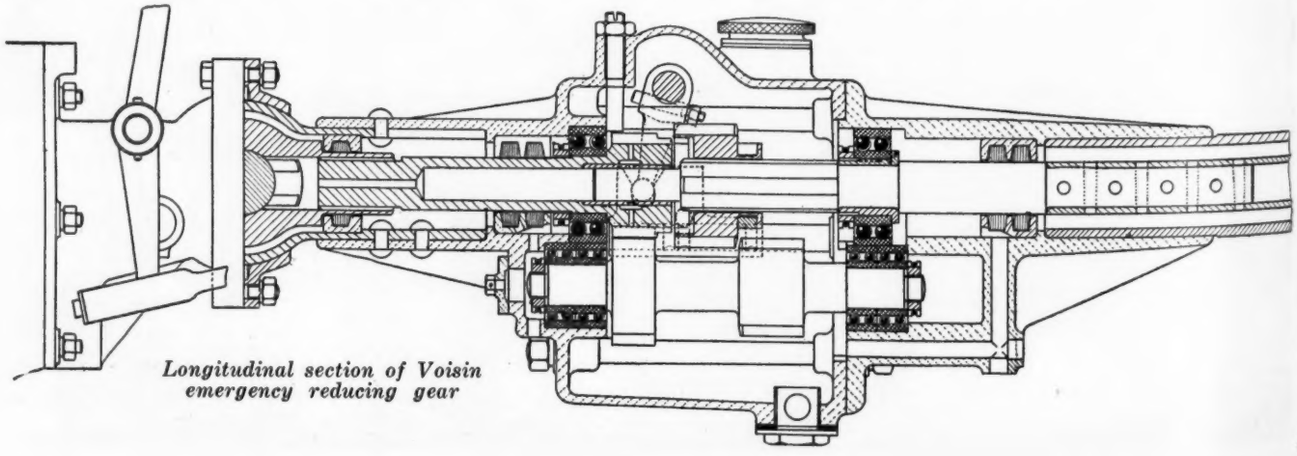
The used car may easily turn out to be the chief factor in 1926 automobile marketing success or failure.

Auxiliary Gear Reduction for Light French Car

AN emergency reducing gear, mounted on the forward end of the torque tube, and giving an additional step down of 1.5 to 1 or 2 to 1, according to requirements, is now fitted to the 12 hp. Voisin having a four-cylinder sleeve valve engine of 95 cu. in. piston displacement. This device has been adopted in view of the general tendency toward closed cars and the desire of owners to make use of them for traveling in the mountains and under other difficult conditions.

"With a 95 cu. in. engine users claim a speed performance of more than 60 m.p.h., and at the same time the ability to climb any mountain road," says Gabriel Voisin. "This makes it necessary to carry engine velocity up to 4000 r.p.m., and with this speed it is practically impossible to step down the axle sufficiently with one pair of pinions. By adopting a normal final reduction varying from 4.7 to 5.4 to 1, according to the type of body fitted, and using a three-speed transmission, we secure good all-round performance under normal conditions. The emergency reduction, giving a further step down of 1.5 to 1, makes it possible to start with ease on 22 per cent gradients and to pull out of heavy ground."

As an experiment, one hundred Voisin cars with this emergency gear were put into the hands of users, and results have been so satisfactory that it has been decided to standardize the device. The gear consists of a step down by means of spur pinions contained within a housing on the front end of the torque tube, the gear being brought into engagement by means of a separate lever by the side of the ordinary gear shift lever.



Longitudinal section of Voisin emergency reducing gear

$35,000,000 Cash Dividends in 12 Years

Financial story of Dodge one of phenomenal growth and prosperity. Business started with $5,000,000 is now valued at nearly $250,000,000

By A. Motelle

NOTHING has stirred the imagination of the investment world in recent years more than the purchase of Dodge Brothers' automobile business by a banking group in the spring of 1925 and its subsequent sale to the public at a large profit.

When this huge deal was consummated with a cash payment of $146,000,000 by Dillon, Read & Co., of New York, an almost entirely new method of fixing the value of an industrial property was established. The value was based on earning capacity and the actual value of the tangible assets or equities behind the business was treated as a matter of secondary importance. This was probably the most interesting phase of the transaction—not the apparently high price at which the company was bought by the bankers in competition with another leading banking house, nor the fact that the successful bid was $22,000,000 in excess of the offer of the competing bankers, nor yet the profit realized by the banking house in disposing of the securities to the investing public.

THIS is one of a series of articles of a similar nature which have been appearing in *Automotive Industries* from time to time during the last four months.

The object of the articles is two-fold: To place before our readers a cross-section of the financial history and policies of the automotive industry by dealing with various representative individual companies, and to show by the actual facts and figures that the increasing confidence of the public in the sound investment value of automotive securities is justified by basic conditions.

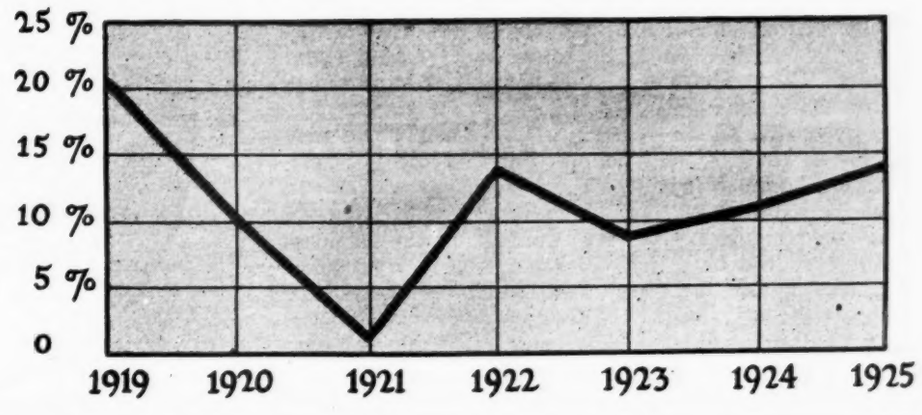
Companies dealt with in previous articles are Studebaker, Hupp and Hudson. In the present instance Mr. Motelle analyzes and discusses Dodge Bros., Inc.

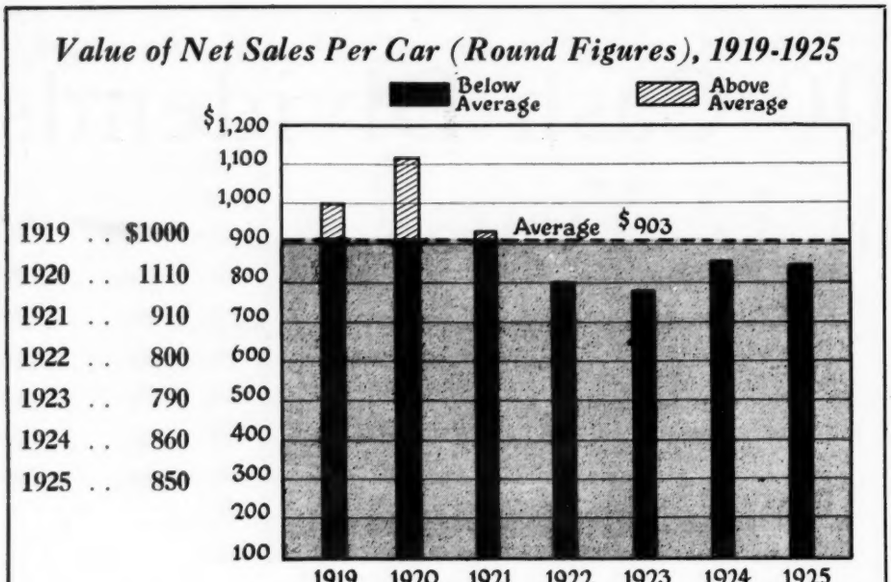
The price, to be sure, was high in the light of the then prevailing standards of valuation of motor securities, and it was especially so in the light of the past relationship of prices to equities. But the syndicate, headed by what may be called a new school of finance, was little moved by these standards. So strong was its conviction of the soundness of its own methods of valuation that it discarded all apology and presented a balance which from an orthodox point of view was nothing short of heresy.

The common stock was shown to be unsupported by any equity and there was about $12 (without deducting the reserve for contingencies) of net tangible assets for each of the 7 per cent preferred stock shares without par

Dodge Operating Profit in Percentage, 1919-1925

1919	20.3%
1920	11.6%
1921	3.4%
1922	14.5%
1923	8.2%
1924	10.4%
1925	13.2%





value. Some considered this as pure effrontery on the part of a young and unexperienced school of practical financiers.

From 1914 to the day when control was passed to the bankers the company spent about $12,000,000 on advertising, without counting the local advertising placed by its dealers; it had built up a splendid international organization of dealers and created a public following of immense value. In view of the popularity of its trademark, supported by an efficient manufacturing and merchandising organization, the good-will might have been capitalized at several times the actual expense of advertising. This would have shown an additional intangible equity (in the case of this company as valuable as any tangible equity) for the preferred, and, if the good-will capitalization were stretched far enough, a few dollars per share of intangible equity could also have been shown for the common shares.

Earnings Alone Considered

Nothing of the kind was considered necessary. A balance sheet was drawn up where the unadulterated values alone were presented, with good-will at $1. Bookkeeping entries do not make money for the security holders and the investors were invited to disregard the balance sheet altogether as an irrelevant matter, and direct their attention instead to the income account, not only of the past but, using their imaginations, of the future as well.

Freed of the shackles under which the estate was laboring, a business under the supervisory management of a court, the company's earning power was expected to increase materially.

But even this does not tell the whole story. So sure were the bankers of their course that they did not hesitate to mark 25 per cent of the original issue of common shares by a letter "B" in which was vested exclusive voting, e.g., managing power. Control of the business was thus secured for a little over $11,000,000 in terms of the approximate value of the common shares at the time the securities were issued. This does not mean that the bankers actually paid the above sum of money for control of the business. It was all profit.

The amount of the securities sold to the public was: $75,000,000 of $100 par debentures offered at 99, or at $74,250,000, and 850,000 shares of preferred with an equal amount of common "A" at $85,000,000, or a total of $159,250,000. This was $13,250,000 in excess of the price paid to the estate and $35,250,000 more than the price offered by the competing banking house.

Assuming the total cost of distribution and marketing of the securities at $8,000,000—a liberal figure—over $5,000,000 was the cash profit. The syndicate, however, had in addition 650,000 shares of class "A" stock which at only $20 (it is now selling around $32) represented a value of $13,000,000, and it further obtained possession of the 500,000 shares of the "B" voting stock, referred to above, into the bargain.

A deal of such magnitude handled in the way described was scarcely ever witnessed before. And what was the outcome?

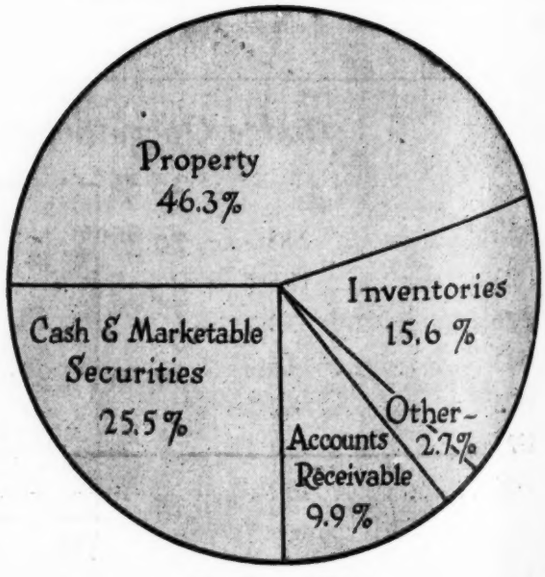
This masterly "coup de finance," which is bound to make history, impossible as it appeared to many at the time, has been fully vindicated by the subsequent course of events, the market having since doubled the value of the common shares.

The profits realized by the syndicate must be considered in the nature of a just reward for sound interpretation of values.

Whether the longer future will give similar justification is a matter, of course, which nobody can foresee with accuracy. Recent developments have given full triumph to the bankers and there is no reason for expecting different results in the future. The thesis of the syndicate that was successful in securing the issue was "Earning power versus equities" against the antiquated slogan of the older school, "Equities first and earning power afterwards."

In order to obtain a better idea of the soundness of the Dodge securities it is necessary to analyze the company's history and its current financial status as well as to

Distribution of Dodge Assets



(April 1, 1925)

extrapolate into the future fundamental tendencies.

Let us state at the outset that there hardly ever was any doubt as to the soundness of the debenture issue, on which charges were earned twice every year except in the depression year of 1921, when only 62 per cent of such charges were earned. It is an understanding of the status of the junior securities that is required for a thorough conception of the Dodge economy.

Dodge Brothers, Inc., is the third largest producer of motors in the world. On April 1, 1925, the company employed 21,000 people. The business was started in 1914 by the Dodge brothers, who were former associates of Ford. When the two sturdy mechanics left the Ford organization to pursue their own fortune in building a medium-priced car they had at their command $5,000,000, mostly accumulated as their share in the Ford business, and an industrial principle of motor values that was a blending of Ford methods, evolved in a specialized branch of the industry, with a deep understanding of the trends in the industry at large. The business grew fast. In 1917 the par value of the capital stock was increased to $10,000,000; in 1922 it grew to $50,000,000.

The business was built up out of accumulated earnings while at the same time large dividends were paid—160 per cent in 1921; 60 per cent in 1922, when also a stock dividend of 400 per cent was paid; 14 per cent in 1924, and 12 per cent in 1925—a total of $35,000,000 in cash and 400 per cent in stock dividends.

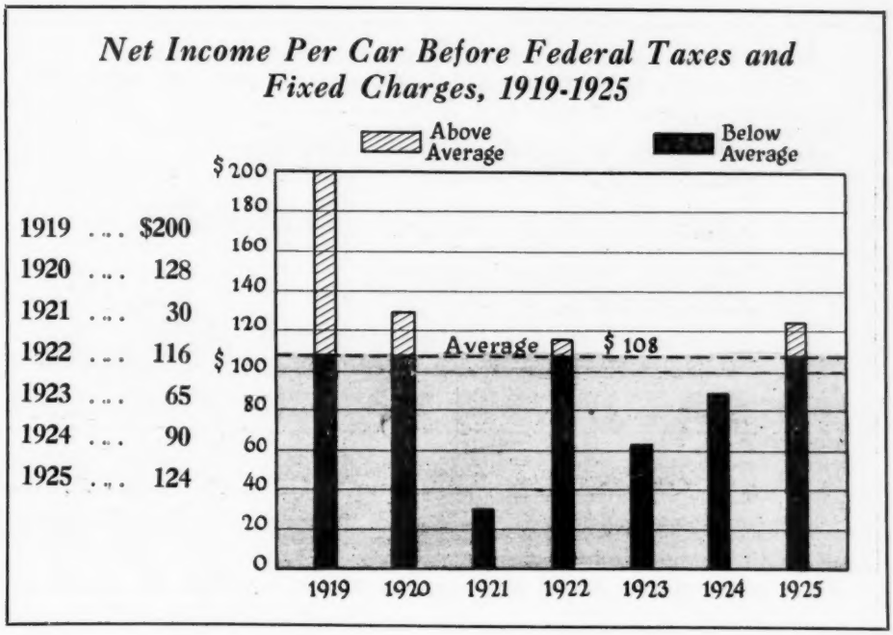
At the time of the incorporation of the present firm, which took place in the spring of 1925, it showed a net book worth, e. g., gross book assets less current liabilities and reserves, of some $80,000,000, with a high degree of liquidity, where net working capital was 35 per cent of the total book assets. While the net worth at present is probably around $92,500,000 after deducting reserves of $7,500,000, the market was valuing the business at the recent high prices at nearly $250,000,000, if the voting "B" stock is given only a 10 per cent larger value than the non-voting "A" stock ("A," taken at 45; "B," at 48.5)* and the senior securities are taken at par. This appreciation of $65,000,000 over the value of the securities at time of issue not only tells a story of amazing success and growth but incidentally brings out the huge appreciation in the total investment value of the securities since they were offered to the public.

In the first two months of 1914, its first year of existence, the company sold 249 cars; by 1919 the number of cars and trucks sold rose to 121,000, in round figures, and so it went on increasing every year, even in 1924, when the industry as a whole experienced a mild reaction. The only setback experienced by the company was in the year of the most acute depression in the motor industry, 1921, when the sales fell from 145,389 cars and trucks in the preceding year to 92,476. However, even in that year the company escaped the red ink figures shown by the majority of motor companies. In 1924, 222,236 cars and trucks were sold, and in 1925 a new record of 255,322 was made.

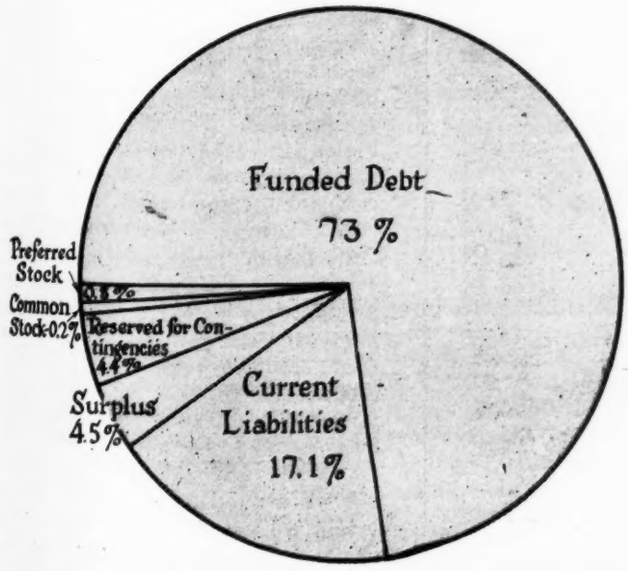
Applying the total value of sales from all sources—cars and parts—to the number of cars sold we find that the average value of such sales per car was in round figures $1000 in 1919 and reached a peak of $1100 and then declined gradually until it reached $790 in 1923. In 1924 the average value rose to $860 per car, and decreased slightly to $850 in 1925. This shows the known tendency in the automobile industry to give ever greater car values, bearing in mind the increase in the percentage of closed cars in the total of all cars, for an ever smaller amount of dollars. And so we find that the net earnings before Federal taxes per car sold, which were as high as $200 in 1919 (during the depression year of 1921 they slumped to the subnormally low figure of $30 per car sold), decreased every year until they reached $65 in 1923, but in 1924 improved to $90, and in 1925 showed a further improvement to $124 before interest charges.

The same tendency is shown in the margin of profit.

Net Income Per Car Before Federal Taxes and Fixed Charges, 1919-1925



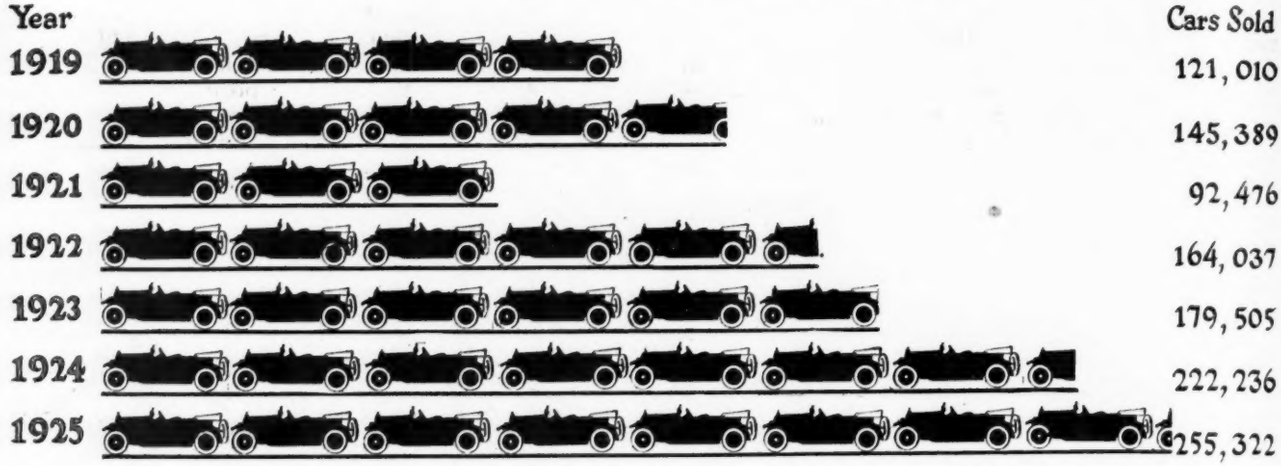
Distribution of Liabilities



(April 1, 1925)

*These calculations are based on stock market values at the time this article was written. The class "A" stock was then quoted at 45 and higher.

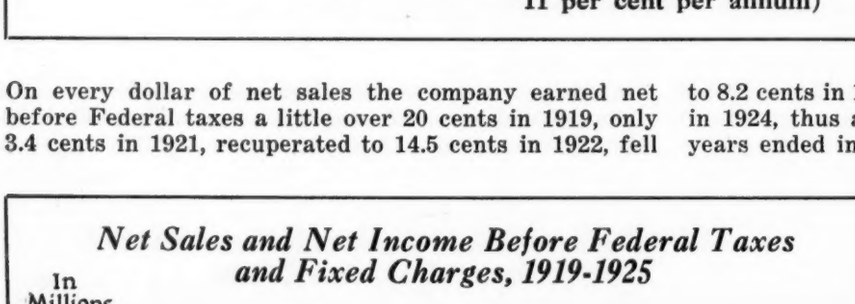
Dodge Car Sales for Years 1919 to 1925



(On a compound basis the average increase in the number of cars sold has been around 11 per cent per annum)

On every dollar of net sales the company earned net before Federal taxes a little over 20 cents in 1919, only 3.4 cents in 1921, recuperated to 14.5 cents in 1922, fell to 8.2 cents in 1923 and then improved again to 10.4 cents in 1924, thus averaging 11 cents on the dollar in the 3 years ended in 1924. In 1925, this margin increased to 13.2 cents on the dollar.

Net Sales and Net Income Before Federal Taxes and Fixed Charges, 1919-1925



Year	Net Sales	Net Income
1919	$120,970,810	$24,194,352
1920	161,002,512	18,601,780
1921	83,666,284	2,801,370
1922	130,625,774	19,054,098
1923	141,332,685	11,590,637
1924	191,652,446	19,965,440
1925	216,841,368	28,698,846

It is thus seen that this company, like many others, has come to depend for its profits to a greater extent than in the past on mass production. Of course, should there be a serious slump in its business, its earning power may shrink materially, as it needs quite a good sized minimum of business to break even. The recent widening of its scope of operations through the acquisition of the business of Graham Brothers, a leading factor in the light truck and bus fields, taken together with the expansion of its own plants as well as those of Graham Brothers at a reported cost of $10,000,000, indicates a determination not only to take care of its customary business but also to tap new and profitable fields. The company is also pursuing aggressive policies in the export field. Exports of Dodge vehicles in 1925 are estimated at something like 12 per cent of the company's total output and 35 per cent in excess of the previous year.

In looking over the past of the company one cannot help being impressed by the many unusual achievements and features. It has conducted an unusually profitable business. On its invested gross book capital it earned a little under 22 per cent in such a mediocre year as 1924, and in 1925 probably earned around 33 per cent—an astounding margin of profit. From 1914 to September, 1925, it sold 1,430,961 cars at an aggregate, in-

cluding parts, of $1,105,000,000, an average of almost $100,000,000 a year.

On a compound basis, the average increase in the number of cars sold has been around 11 per cent per annum. It may be of interest to note that the average net value of all the cars sold during the company's existence (applying the income from the sale of parts, etc.), has been around $860 or practically the same as the average value per car shown for 1925.

Coming now to the financial framework of the business, we find that as of April, 1925, depreciated property * stood at $47,600,000 and was 46.3 per cent of the total gross book assets; cash, marketable securities and equivalent values absorbed 25.5 per cent of total assets, inventories 15.6 per cent and accounts receivable 9.9 per cent.

High Rate of Turnover

In this connection it may be of interest to note, as an index of high merchandising efficiency and liquidity of the business, that for 1925 the accounts receivable were probably turned over around 25 times, inventories 15 times, the net worth of the business 2.2 times and gross book assets over two times. These are high standards for the industry. It means that for every $1 of yearly business the company has only 11 cents tied up in inventories and dealers' accounts. As a further index of the liquidity of the business it may be mentioned that against the $1,105,027,559 of sales for the period 1914-1925 (to September, 1925) losses on bad debts amounted to the negligible figure of $32,141—a truly remarkable record.

The net working capital of the company as of April, 1925, amounted to little under $35,000,000 or 34.9 per cent of the total assets—showing a high degree of equilibrium between fixed and liquid investments. This working capital probably will be turned over in excess of six times, against a turnover of plant of nearly five times.

Another feature that is revealed by an analysis of the asset side of the balance sheet is the high production, sales and earning power per unit of plant, unit of working capital, net tangible assets and gross book assets. For instance, using the balance sheet figures as of April, 1925, we find that for every car produced in 1924 the value stood at $214, while the value of net working capital stood at $157, and the value of net tangible assets $371 and gross book assets at about $460.

Per $1000 of sales, the value of plant stood at $249, the net working capital at $183, the net tangible assets at $432 and gross book assets at $543.

Finally, per $100 of earnings before Federal taxes there was $238 of plant and $175 of net working capital; in other words 24 per cent of such earnings were shown on the tangible assets. These are all high standards to which the industry as a whole may well look up.

Capital Structure

The capital structure of the company is at present as follows: $60,000,000 of debentures reduced from $75,000,000 through conversion, with $15,000,000 out of the present $60,000,000 still convertible into common stock, the next $5,000,000 at $50, the following $5,000,000 at $60, and the last $5,000,000 at $70. In other words, when the price of the common stock will exceed $70, no more than $45,000,000 of debentures should remain. These debentures are followed by 850,000 shares of 7 per cent preferred stock of no par value, 1,934,524 shares "A," and finally 500,000 shares of voting stock "B." The two senior issues are amply supported by the current earning power; the fixed charges and preferred dividends combined absorbed about two-fifths of the 1925 earnings. Fixed charges alone were earned about six times.

As regards the common shares "A," profits in 1925 were equivalent to $6.59 after all deductions.

Since April last, the financial position of the company has shown further material progress resulting from the large earnings. For instance, notwithstanding the large expansion in sales, both accounts receivable and inventories were reduced as compared with April, which may be due in part to seasonal factors. Accounts payable were also reduced, while cash and cash equivalent were greatly increased. Plant showed a small expansion, and this item, as well as other investments and assets, will probably show further expansion in the next balance sheet as a result of the policies referred to above.

Undoubtedly the new company has demonstrated not only ability to continue the profitable policies of its predecessor, but has further consolidated and extended them without impairing their aggressiveness. Progress in the merchandising field has been supplemented by equally progressive policies in the manufacturing field with special emphasis on trucks and buses.

As to the future of the company, there is no reason why it should not continue to benefit from the growth of the country, the growth of the percentage of people running cars and the world's demand for motors. Just now it may be experiencing a certain shrinkage in earning power as a result of the reduction in prices announced early in January. The gross margin of profit per car for 1925 was, as we have seen, around $124 or $34 in excess of 1924. But increased and more diversified output and higher manufacturing efficiency will probably offset most, if not all, of the possible loss in the margin of profit which may result in 1926 from lower vehicle prices.

* The depreciation policy of the company is conservative: 4 per cent on buildings, 12.5 per cent on machinery, 15 per cent on equipment, electrical wiring 15 per cent and railway yard and equipment 5 per cent.

Koltchougalumin, Russian Metal

REVUE DE METALLURGIE for October publishes an abstract from the Russian *Messenger of Industries and Metals* in which the metallurgist Boutalov discusses attempts made by him to prepare an alloy analogous to duralumin. Taking a hint from a statement made by Roberts Austen, that the hardness of gold increases or does not change if to it are added elements whose atomic volume (the quotient of the atomic weight by the specific gravity) is less than or equal to that of gold, the author proceded on the assumption that this would hold also in the case of aluminum.

He therefore tried to add nickel to aluminum alloys, whose atomic volume (6.6) is lower than that of aluminum (10). The experiment was successful, and the author obtained an aluminum alloy containing small quantities of copper, nickel, maganese and magnesium. This alloy, which he produced for the first time at the Koltchougino works (forming part of the Union of State Industries devoted to colored metals) was named Koltchougalumin by him.

This alloy has a specific gravity of 2.8, and a tensile strength up to 85,000 lb. p. sq. in.; it rolls well, even immediately after having been cast, without having undergone a previous heat treatment. It may be forged and drawn hot or cold, and it lends itself well to all of the different mechanical treatments; that is, it can be turned, spun, polished, cold-pressed and drilled. Heated to 500 deg. C. and cooled rapidly it hardens, and its mechanical properties are not improved immediately after the quenching but become a maximum after about eight days.

Pressure Waves are Photographed by Newly Found Method

Use is made of the property of light rays, whereby they are reflected when passing between mediums of different densities. Wave is invisible and can't be photographed by ordinary means.

THE pressure waves set up under certain conditions when explosive mixtures are ignited have been the subject of experimental study by scientists for a great many years. The subject is of interest in connection with internal combustion engine work, but it also has a bearing on problems connected with the use of guns.

That disturbances in the atmosphere can be propagated at a speed far greater than that of sound has been known for a long time. It was proven mathematically by Stokes in 1848, and the same ground was covered by many others later. That the theory was correct was first shown experimentally by Regnault in 1864, who used a cannon as the source of disturbance and proved that the rate of progress of the sound or pressure wave through the atmosphere is dependent upon the intensity of the source.

In 1879 Mach and Gruss, continuing some experiments by Topler, showed that the speed of propagation of the pressure wave produced by an impulsive electric discharge increased with increase in the intensity of the existing source. In 1899 Vieille found that an abrupt disturbance produced by the sudden release of a volume of gas at high pressure was communicated through the surrounding atmosphere at a speed much greater than that of sound. In one instance he recorded a speed of about 600 m. per second, as compared with 330 m. per second, the velocity of sound in air at normal temperature and pressure.

The mathematical explanation of this phenomenon is complex, but some idea of it can be obtained if an intense prolonged disturbance be regarded as made up of a large number of successive small disturbances. The first disturbance gives rise to a normal sound wave. The second disturbance finds the air through which it has to pass slightly compressed and heated by the first, and consequently its wave travels faster than and overtakes the first. Each wave in turn travels faster than the one in front of it, and the primary wave front, continually reinforced by the arrival of succeeding waves, steepens and acquires an abnormal amount of energy. With the increase in energy the speed of the wave front rises above the normal speed of sound, the maximum speed attainable being that of sound in air at the temperature prevailing immediately behind the wave front. This form of wave front gives rise to a rapid and large change of pressure in the medium through which it passes, and is called a shock wave.

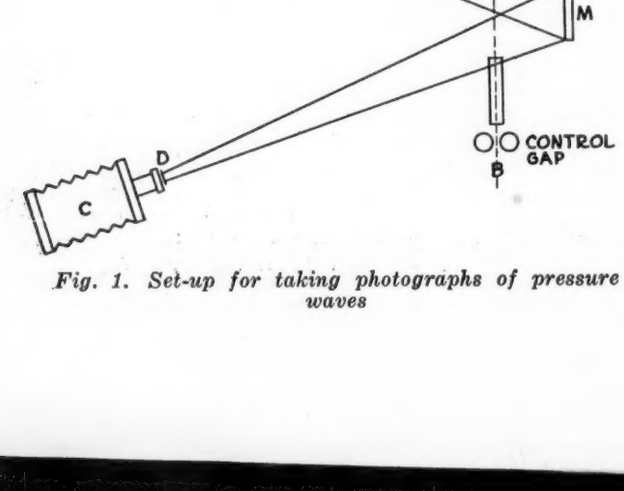


Fig. 1. Set-up for taking photographs of pressure waves

The above explanation of the genesis of a wave front is given in Paper No. 18 of the British Safety in Mines Research Board, recently published by H. M. Stationary Office. This paper is Part I of an account of an investigation by W. Payman and H. Robinson on pressure waves sent out by explosives when detonated. The object of the research was to secure photographic records of the shape and appearance of the pressure waves, and of their speed of propagation. Special optical and electrical timing devices were used for the purpose.

Two Difficulties Encountered

Two difficulties stand in the way of photographing the pressure wave sent out by an explosive. The wave in the first place, is invisible, and, in the second, its speed is too great to permit ordinary methods of taking "instantaneous" photographs to be used.

Two distinct methods of observing atmospheric striæ have been employed by previous investigators, namely, the "shadow" method of Dvorak and the "schlieren-methode" of Topler. Both depend upon the refraction which takes place when light passes from one medium into another of different density.

In the Dvorak shadow method the striæ to be observed are produced in the atmosphere between a point source of light and a screen or photographic plate. If the striations be supposed replaced by a gaseous sphere of density different from that of the surrounding atmosphere, it will be understood that rays of light passing through the edge of the sphere will be deflected to some short distance away from the points on the screen or plate, which they would strike were the sphere absent. On the other hand, rays striking the sphere almost normal to its surface will pass through it with little or no refraction, and will suffer a relatively small amount of displacement on the screen. In effect a shadow of the edge of the sphere is thrown on the screen and appears as a black circle. The deflected rays serve to increase

the illumination inside or outside the black circle, according as the density of the sphere is greater or less than that of the surrounding atmosphere, and cause a bright circle to appear close to the dark circle.

This method has been used to photograph the atmospheric disturbances produced by rifle bullets in flight, the pressure pulse sent out through the atmosphere by a disruptive electric discharge, the phenomena accompanying the impact of a solid sphere with a liquid surface and other subjects. It has, however, certain disadvantages when the striæ to be photographed are accompanied by actinic flame. The Topler method is free from these disadvantages, and was used for the most part by Payman and Robinson in their research on explosive pressure waves. The method as they applied it is illustrated in Fig. 1. At M is indicated a concave mirror of stainless steel, 46 cm, in diameter and 1.83 m. in focal length. Then there is a source of illumination, and at C a recording camera. An opaque diaphragm D with its edge horizontal is placed in front of the lens so as to cover its lower half. A B indicates the plane in which are set up the striæ to be photographed. In use, the camera is placed in such a position that the image of the source of light is brought to a sharp focus on the diaphragm D. The camera itself is focussed on the plane A B. If there are no striations in the plane A B, the whole image is received on the diaphragm, and the sensitive plate in the camera is unexposed to it. If striæ are present the deflection which they produce in the rays of light will cause the rays to pass beyond the edge of the diaphragm, through the camera lens and on to the sensitive plate, with the result that an image of the striations will be received.

Topler's method has been used by various investigators to photograph the pressure pulse from an electric spark, to illustrate phenomena connected with the propagation of sound, to photograph flame phenomena, and to record the atmospheric disturbances caused by high-velocity projectiles in flight.

High Speed of Waves

Either of these methods serving to make explosion pressure waves visible, the next point to consider is the difficulty introduced by the high speed of the waves. When photographing a moving object, the plate must be exposed only for a period during which the movement of the object is inappreciable. If the object is moving with the speed of sound, 330 m. per second, its displacement in one hundred thousandth of a second is 3 1/3 mm., so that with a 4 to 1 reduction the image on the plate will move during the exposure period about ¾ mm., an amount sufficient to produce excessive blurring. A shock wave may move at many times the speed of sound. To use a mechanical shutter for the purpose of obtaining the necessary short exposure is out of the question, and as an alternative the plan is generally adopted of maintaining the illumination for no more than the exposure period required. To this end, Payman and Robinson used the spark produced by the discharge of a Leyden jar. Such a spark, it is believed, has a duration of about one ten-millionth of a second, and, in addition, has an actinic effect quite sufficient to act on a sensitive plate exposed to it for this short period. The plates used were of the "process" variety of a low speed—H. and D. 20.

A body moving with the speed of sound would traverse the field of view of the camera in Fig. 1 in less than one two-thousandth of a second. The synchronisation of the illuminating spark with the appearance in the field of view of a rapidly moving shock wave calls therefore for the employment of delicate means. Recourse was had to electrical methods. In bullet photography it is usual to cause the bullet itself to effect the timing by making it short circuit a spark gap, the "control gap," in such a way that an illuminating spark is produced simultaneously at a second gap, the "illuminating gap," arranged in series with the first. Such a use of the projectile was impossible in Payman and Robinson's experiments, but an adaptation of it proved quite successful. This adaptation involved a control and an illuminating gap, the control gap being closed electrically by a copper strip when such strip was hit by the wave to be photographed. This method gave accurate control when the source of disturbance was provided by the bursting of a diaphragm.

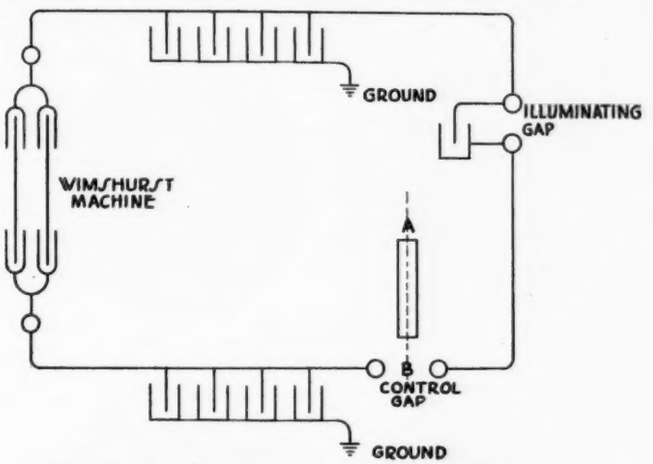


Fig: 2. Arrangement for timing exposure automatically by the detonation

When the disturbance was created by an explosive, it was found possible to employ a still simpler method of effecting the synchronization. It was discovered that the gaseous products of the detonation, either by virtue of their temperature or composition, or both, were capable of causing the breakdown of an electrically charged spark gap, and so could be made to time the passage of the illuminating spark. The arrangement employed is illustrated in Fig. 2. A motor-driven two-plate Wimshurst machine was used to charge two batteries of Leyden jars. The outer vessels of the jars were grounded and the inner were connected across two spark gaps in series, one of which, the illuminating gap, had a small Leyden jar connected in parallel with it to increase its luminosity. The control gap was placed in the line of fire of the explosion. To prevent the control gap appearing in the photograph, the arrangement was subsequently modified to the extent of dividing the wave into two separate portions, one being used to break down the control gap, set out of the field of view, while the other was photographed. The spark gaps consisted of two brass spheres, 5 mm. in diameter, the illuminating gap having a fixed width of 1 cm. and the control gap a width varying from 2 cm. to 5 cm., according to atmospheric conditions.

A method of measuring the speed of the wave was developed. It was found that with a particular setting of the diaphragm in front of the camera lens the wave front appeared in the photograph as an intense black line, and without anything but the outline of the wave being shown. With this setting of the diaphragm and a continuous source of illumination, a photograph was taken on a length of film stretched on a rapidly revolving drum. A continuous time-distance diagram showing the movement of the wave front was thus obtained. The film was moved vertically and in front of it a horizontal stenopaic slit was fitted. By this arrangement the out-

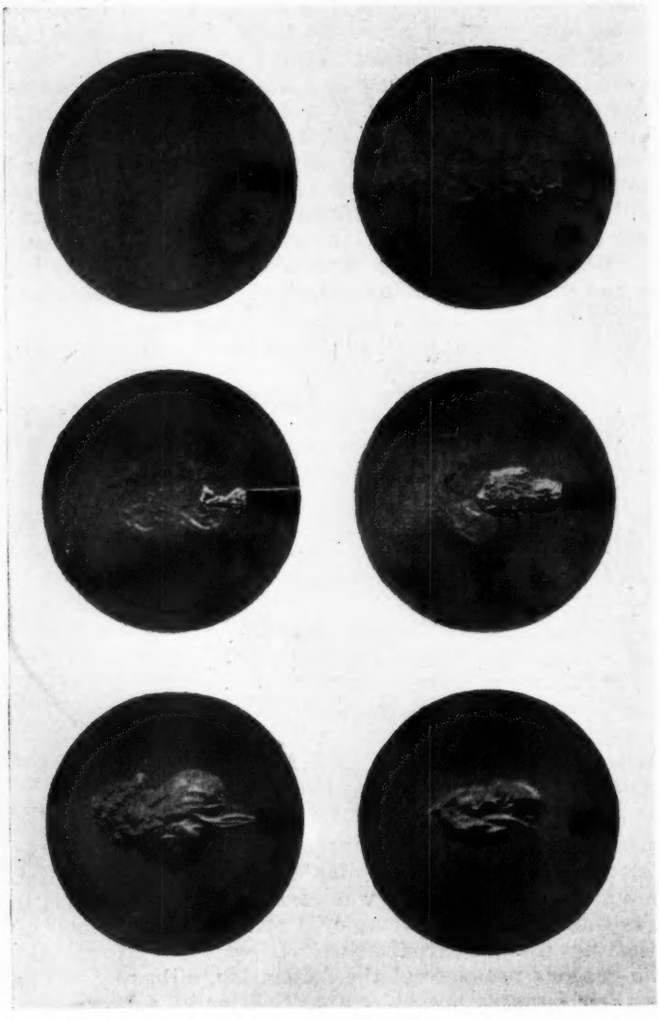


Fig. 3. Some of the photographs taken of the explosion of a methane mixture in a brass tube

ward spread of the wave was not recorded, and the position of the wave front at any instant was given by a spot of light, and the record of its movement by a clearly defined black line across the film.

The experiments undertaken cover a study of the waves sent out through the atmosphere on the rupture of diaphragms by compressed air, on those sent out by a detonating gas mixture, and on those sent out on the explosion of a detonator.

Propagation Illustrated

In Fig. 3 are reproduced six of the original photographs taken by Payman and Robinson by means of the Schlieren method. This series of photographs illustrates the propagation of combustion in a mixture containing 9.5 per cent. of methane, when fired in a brass tube, 2.5 cm. internal diameter, by means of an electric spark at the centre of the tube. In the first and second views the mixture ejected from the tube in advance of the flame is shown. The remarkably beautiful symmetry assumed by the unburnt gas in the second view is very striking. In the third and fourth views the flame following the unburnt gas is seen. In the fifth and sixth views flame alone appears to be present. These photographs were taken with a silvered glass mirror instead of with one of stainless steel. The circles seen at the centres of the photographs and the four circular dots surrounding the central circle are effects produced by strain in the mirror.

Engine Test Results With Suction Gas

AT the conclusion of the recent Franco-Belgian military truck contest, in which all of the trucks were operated on suction gas, some bench tests of the power plants were made at the Laboratory of the Automobile Club of France, and reports of the tests on several of the outfits are reproduced in *Le Poids Lourd*.

One of the Panhard producers operated on a special compressed charcoal manufactured by the Carbonite Company of Bayonne. This is in the form of balls of about 1⅛ in. diameter.

Whereas in the tests with ordinary charcoal the vacuum just ahead of the mixing device was equal to 20 in. of water column, with carbonite it was only 10 in. The difference is believed to be due in part to less smudging of the sheet metal gas filters used with the Panhard system, and in part to greater penetrability of the bed of fuel, due to the shape of the fuel units. This reduced vacuum resulted in a higher volumetric efficiency of the engine, which developed a maximum of 36 instead of 32 hp. During the preliminary tests the mean effective pressure was found to be as high as 87.3 lb. per sq. in., which is substantially the same as obtained with most gasoline engines not of the "high efficiency" type. As to the composition of the gas, following are some test results:

CO_2	2	1.8	2.2
O_2	0	0	0.
CO	31.6	31	31.6
H_2	4.4	6.6	7.4
CH_4	0.2	0.2	0.2

These compositions correspond to a mean heat value of 1100 calories per cubic meter or 120 B. T. U. per cu. ft. The average power developed under full throttle was 36.4 hp. at 1190 r.p.m. and the mean effective pressure was 80.5 lb. per sq. in. The specific consumption of carbonite during the 6-hour full load test, including the starting of the generator, was 0.886 lb. per horse-power hour. An analysis of the exhaust gases gave the following results:

CO_2, 19 per cent; O_2, 0.6 per cent; CO, 1.2 per cent

These figures indicate very good combustion.

The Renault engine with Renault generator which formed the power unit of a 5-ton truck in the military trials, gave the following results:

In the full load test the average power developed was about 30 hp. The mean effective pressure was 61.2 lb. per sq. in., which is said to be quite creditable for a valve motor, from which it appears that the Panhard was a sleeve valve engine. The specific consumption of charcoal was about 1.08 lb. per hp. h. The gas produced by this generator gave the following analysis, taken during the course of the tests:

CO_2	1	1.4	1.8
O_2	0.4	0.2	0.4
CO	30.4	31	30.2
H_2	6.4	6.2	6.8
CH_4	0.8	..	..

This also corresponds to a theoretical heat value of 120 B. T. U. per cu. ft.

Exhaust gas analysis showed the exhaust to contain 16.8 per cent of CO_2, 3.6 per cent of CO, and no O_2. A test for dust content gave 10 centigrams per cubic meter, which is not at all excessive. The engine is of the 18 hp. type (this is evidently the tax rating) of 3.94 in. bore by 6.3 in. stroke.

Just Among Ourselves

Agreeable Disagreements Getting More Common

THE ability to disagree and to discuss points on which their opinions differ without impugning motives or calling into question honesty of purpose is one of the important developments in dealer-manufacturer relations in the last decade. There was a time when calling of names, mutual disrespect and recriminations were not uncommon among both car executives and retailers in the case of differences over merchandising policies. Today little of that spirit is left in the business. The voice of the contitutional human crab is heard now and then to be sure, but on the whole there is far more of mutual respect than there was a few years ago.

* * *

Dealer Views Sought by Factory Executives

A SALES manager, whose company policies differ strongly from certain of the N.A.D.A. finance resolutions, for instance, said the other day: "I'm mighty glad the dealers expressed themselves so clearly and so strongly. We can't expect to agree on everything, but it's pleasant and easy to deal with men who will state frankly an honest opinion. The dealers are entitled to their say just as much as the manufacturers. They have to be successful or we can't be. Knowing my dealers' opinion on merchandising questions makes it easier—not harder—to run my end of the business properly." And another manufacturer right now has sent a query to a large number of his dealers asking them a question something like this: "If you were a manufacturer, what would you do that manufacturers are not now doing to improve operating conditions for dealers or what changes would you make in present policies?" That doesn't mean that this manufacturer will upset all of his present methods in order to try to please every dealer who answers the question. It does mean that he is eager to learn the dealers' views and probably to see if any single change is desired by a large proportion of retailers. Yes, the factories and dealers today are working steadily toward better mutual relationships.

* * *

Americans Out to Make Aviation Pay

WHILE America has been accused of being behind in the development of commercial aviation, it begins to look as though our growth along these lines, as it does come, will be on a more profitable and consequently a sounder basis than that of foreign nations where it was more rapid. Howard Mingos says in the latest *World's Work*, for example, that "No European air line is self-supporting." Several American lines on the other hand have been self-supporting for some time, while even our supposed lack of aviation development is largely imaginary since, as Mingos points out "Within the next few weeks more machines (all of them American-built) will be flying on regular schedules in the United States than in all European countries combined." American commercial aviation undoubtedly is coming into its own very rapidly.

* * *

Leadership Has Penalties But Also its Rewards

"IN every field of human endeavor," points out an automobile publicity booklet which has just come to our desk, "he that is first must perpetually live in the white light of publicity. Whether the leadership be vested in a man or in a manufactured product, emulation and envy are ever at work." Certainly that is a true statement. It seems to us that it is to the credit of the automobile industry, however, that it has seen much more of emulation than of envy. Ill feeling has existed between various persons or companies in the industry to be sure, but generally speaking the industry has grown to its present powerful place through an unusual degree of cooperation between the companies and executives which comprise it. Of emulation there has been plenty. A successful design, either body or chassis, frequently has been followed by a style trend which brought many other makers to somewhat similar constructions or appearances. But stolen thunder rarely does material harm economically to the originator of the thunder. It isn't pleasant to have some one take hold of an idea which you thought up all by yourself and yet we are told on good authority that it is the sincerest form of flattery. This very emulation may have been responsible to some extent in our industry for the rapid progress that has been made; leaders have never been able to lie back on their laurels. The leader gets very definite and concrete rewards for being a leader; but, as indicated by the title of the booklet mentioned, there is a very definite penalty which goes with leadership.

* * *

G. M. of Canada Has History of 56 Years

DESPITE the fact that the history of the automobile industry extends back only a little more than twenty-five or thirty years, one unit of General Motors Corp. is fifty-six years old this year, according to a recent statement of "facts about this famous family." General Motors of Canada, Ltd., had its beginning in a blacksmith shop started by Robert McLaughlin at Enniskillen, Ontario, in 1870. That gives the Canadian unit the honor of being the oldest unit in the Corporation.

—N. G. S.

Quality of Gasoline Hasn't Changed Much in Last Six Years

Bureau of Mines' records show slight variation in fuel since 1920. No necessary relation between gravity and volatility. Difference between paraffin and asphalt base is explained.

By A. J. Kraemer
Associate Petroleum Chemist, U. S. Bureau of Mines

IT will be remembered that in 1920, after about five years of continued and rapid deterioration of our motor fuel, manufacturers of engines and of motor vehicles expressed considerable anxiety as to how much higher the end point as well as intermediate points in the distillation curve of motor fuels would go. They had to design their engines so that they would be capable of operating efficiently on the fuels that would be marketed during a period of something like ten years, and if gasoline should continue to change its properties at the rate at which it had been doing during the last five years, this seemed an unsolvable problem.

This situation is recalled by a paper presented at the March meeting of the S.A.E. Metropolitan Section, by A. J. Kraemer, associate petroleum chemist of the U. S. Bureau of Mines, in which it is shown that the gasoline sold to motorists today is substantially the same as that sold in 1920, as regards both gravity and volatility.

Mr. Kraemer also went to some extent into the production of gasoline by the various processes, and touched upon the differences between paraffin base and asphalt base crudes. The accompanying is an abstract of his paper.

IT seems impossible to discuss the properties of crude oils without sooner or later coming to the question of so-called "paraffin base" and "asphalt base" crude oils. There seems to be a great deal of confusion due to the use of the term "asphalt base" which usually, though not always, means naphthene base.

Naphthenes are a class of hydrocarbons which have the property of remaining liquid at much lower temperatures than corresponding members of the paraffin series of hydrocarbons. These naphthene compounds seem to predominate in the crude oils usually designated as "asphalt base" oils. The asphalt content of a crude has no necessary relation to the content of naphthene compounds, although the two types of substances, naphthenes and asphalts, usually occur together.

So-called "paraffin base" crudes are those in which the paraffin series of hydrocarbons seem to predominate.

This series of hydrocarbons is solid at temperatures at which the corresponding naphthene compounds are liquids.

With this explanation it may be stated that the crude oils of the Gulf Coast, and the older production of California are usually classified as "asphalt" or "naphthene" base.

The crude oils of California yield lubricating oils which are similar in their physical characteristics to the corresponding lubricating oils made from the Gulf Coast crudes. The California crudes differ from those of the Gulf Coast in that some of them contain considerable gasoline, and others contain a large proportion of asphalt. During the past three or four years there has been produced in southern California a large volume of crude oil with a high content of gasoline, as well as paraffin wax. There has been for a number of years a small production of wax-bearing California crude, but only recently has this reached considerable proportions.

Crude oil has for some time been imported from Mexico, and recently important quantities of crude have been received from South America. Taking the South American crudes as a whole it may be stated as a generalization that many of them are similar to California oils, and others resemble Mid-Continent crudes. So much for crude oils as such.

There has been a considerable amount of discussion in recent years in regard to the quality of gasoline being supplied to the public. The work of the Bureau of Mines, in keeping informed in regard to the quaility of gasoline sold in the United States, has indicated that the gasoline now being sold is about equal to that sold six years ago, or in the intervening time. The following table shows the averages of the motor gasoline surveys for the Bureau of Mines since January, 1920.

Average Results of Motor Gasoline Surveys

Winter

Survey	Specific Gravity	A.P.I. Degrees	First Drop	20%	50%	90%	End Point	Aver. B.P.	Per cent Recovered
Jan. 1920	.748	57.7	119	200	259	369	427	264	96.6
Jan. 1921	.744	58.7	113	197	261	377	431	264	95.9
Jan. 1922	.745	58.4	102	200	267	377	430	268	96.0
Jan. 1923	.744	58.8	107	201	267	375	427	268	96.0
Jan. 1924	.748	57.7	96	196	267	383	431	268	96.2
Jan. 1925	.746	58.2	95	195	266	382	425	267	96.2
Average	.746	58.2	105	198	264	377	428	266	96.2

Summer

Survey	Specific Gravity	A.P.I. Degrees	First Drop	20%	50%	90%	End Point	Aver. B.P.	Per cent Recovered
July 1920	.749	57.4	130	208	268	388	446	277	96.7
July 1921	.747	57.9	125	202	262	377	433	270	96.7
July 1922	.752	56.8	121	208	270	375	429	273	96.8
July 1923	.751	56.9	125	206	269	382	436	273	96.8
July 1924	.751	56.9	107	200	271	390	431	273	96.0
July 1925	.754	56.2	108	204	275	387	427	275	96.2
Average	.751	56.9	119	205	269	383	434	274	96.5

This table shows that there has been very little variation

in the average values for the gasolines gathered by the Bureau of Mines in these surveys. These samples were taken directly from the service station pumps, by Bureau of Mines employees, and placed in screw cap cans with tight, leak-proof tops. The figures are not weighted averages, but are arithmetical averages of about 150 samples for each survey.

Another property of gasoline which arouses much discussion is the gravity. There is no necessary relation between the gravity of a gasoline, and its utility as a motor fuel. The following comparison is taken from the original data on some samples of gasoline which were collected during the gasoline surveys.

Sp.Gr.	°A.P.I.	Initial	10%	20%	30%	40%	50%	60%	70%	80%	90%	End
0.745	58.4	104	165	201	225	248	270	293	315	342	378	421
.735	61.0	100	171	208	235	267	275	297	320	342	374	421

According to the present standards of comparison, the second of these gasolines would probably be considered to be less desirable than the first, although the difference is small. According to the gravity, however, the second gasoline would be considered to be better than the first.

In the following two gasolines the lighter gasoline, with the higher A. P. I. gravity, is much inferior, on the basis of the distillation test, to the heavier gasoline.

Sp.Gr.	°A.P.I.	Initial	10%	20%	30%	40%	50%	60%	70%	80%	90%	End
0.761	54.4	106	174	203	221	239	255	275	297	324	363	414
.739	60.0	115	187	219	239	267	277	300	322	349	388	435

These gasolines were not being sold in the same market, but were obtained on approximately the same day, in widely separated cities of the United States. They are cited to illustrate the effect of the nature of the crude oil on the gravity of the resultant gasoline, and to show that there is no necessary relation between the gravity and the volatility of a gasoline.

Whether gasoline in the future will have approximately the same characteristics that it has had since 1920 will depend, it seems to me, to a great extent on whether it will be necessary or desirable that it have those characteristics. This question is bound up in the topic of automotive developments. I believe that the petroleum industry will continue to provide a motor fuel as satisfactory and as easily obtainable as it has been in the past.

There is a distinct advantage in using a motor fuel as heavy as can be utilized by the engine, in that the energy content of a heavy fuel is in general larger in terms of B. t. u. per gallon than a lighter fuel. Motor fuels are almost exclusively sold in this country on a volume basis. Another factor is that the demand for gasoline is enormous, and everything which can be made to serve as motor fuel will sooner or later, have to be so used. When crude oil and gasoline are as cheap and plentiful as they have been during the past few years, there is not the incentive to the most economical utilization, which should be the case. This is not to say that considerable progress has not been made in increasing the yield of gasoline and other valuable products from crude oil. Refining equipment used by progressive refiners is constantly being improved.

Uneconomic use of petroleum, aside from that which is due to its low price, is in large part found in the utilization of motor fuels and lubricants. If the prices of these products should rise considerably above what they have been in the past, there is good reason to believe that more economical utilization would result.

Yellow Coach Introduces Traveling Repair Shop

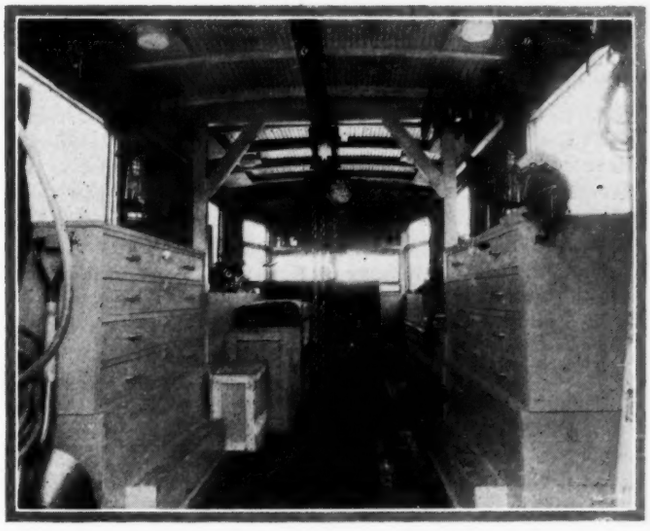
A TRAVELING service and repair shop of the type pictured here will be attached to each factory branch of the Yellow Truck & Mfg. Co. in the near future. The first unit of this novel fleet has been finished and is now operating out of the factory branch maintained by the company in Chicago.

By means of these "traveling workshops," all forms of motor bus maintenance, including heavy repair work on the highways and major overhauls in garages, will be placed at the service of Yellow Coach fleet operators throughout the country. So far as is known, this is the first time a bus manufacturer has undertaken such a comprehensive service program.

The traveling workshop was developed by the service department of the company and considerable ingenuity was exercised in the design. In each case a corps of trained service men will be assigned permanently to the unit.

An unusual feature of the "break-down" bus is its wide range of mobility. To enable the vehicle to remain away from the "home" garage several days when extensive repair work is encountered, special attention has been paid to the comfort of the crew. In addition to an emergency bed, two hammocks can be swung in the inside of the body enabling the crew to get the necessary rest. The workshop is well lighted in daytime by three panes of safety glass on each side while several dome-type lights are provided for night. Comfortable working quarters in any kind of weather are insured by heat supplied through a hot air manifold type heater and foul air is disposed of by three roof type ventilators.

Side view of the Yellow motorized repair shop. The panel opened out serves as an additional workbench. The racks for the tools and also the vise should be noted



Interior of the repair shop. The hoisting crane can be seen. Several spare parts and supplies are carried in the drawers on the two side benches

Actuarial Computation Fixes Average Life *of* Car *at* 7.04 Years

Michigan professor adopts new method of dealing with an old question and gets results which check closely with figures arrived at by other statisticians.

THIS article describes how, by the adaptation of actuarial methods to motor vehicle statistics, a life curve for automobiles has been constructed which checks rather closely with similar data obtained by other means.

For example, the average life of a motor vehicle, according to the actual computations, is 7.04 years, which agrees with life estimates made by other statisticians and published in *Automotive Industries* during past years.

According to the life curve there were about 1,549,000 cars scrapped during 1925 and the similar figure published in the 1926 Statistical Issue of this journal was 1,511,000. Total registrations for 1925 computed by the actuarial method are within 350,000, or 1.8 per cent, of the actual figures compiled by this paper.

AN estimate of 7.04 years for the average length of life of motor vehicles will not appear unreasonable to those who have followed the studies made on this subject during recent years. That Ford cars have a substantially longer life than the average of all other makes taken as a group will not appear quite so reasonable, yet this is one of the conclusions drawn by C. E. Griffin, Professor of Marketing, University of Michigan, from a recent study of the life history of automobiles.

In the first of a series of bulletins to be published by the recently established Bureau of Business Research of the University of Michigan School of Business Administration, Professor Griffin presents the results of an investigation of automobile length of life. His studies have followed a different line of thought than is usually employed in this work so that his results are particularly interesting in that they check, to a considerable degree, with results obtained by other methods.

Because of the wide variations which have occurred in production, Prof. Griffin does not believe that a single "average life" figure is of any great use, so he prefers to supplement such a figure with a series of points which represent the number of cars of any given lot starting life together which will be in use at the end of two years, three years, etc. In other words he employs a life curve for cars analagous to the life curves employed in vital statistics.

In constructing such a curve there are three means which may be employed. Any given number of cars can be assumed to be in existence at any given time and then the number of this original group still in use at the beginning of each succeeding year can be determined. This would be called a "survivor curve" because the ever decreasing series of numbers would represent the number in existence at succeeding dates. A second method would be to determine the number eliminated each year or the difference between those in use any year and the year previous. A third method, and the one used by Prof. Griffin, is to express the number eliminated each year as a percentage of those living at the beginning of that year. These percentages are called "specific death rates" in actuarial parlance.

The way this method operates is described by Prof. Griffin as follows:

"If we knew that in 1920 there were in any community 500 persons who were born in 1890, and in 1921, with no emmigration or immigration, there were 450 persons who were born in 1890 we would conclude that 50 had died. Since 50 is 10 per cent of the number living at the 1920 census we could say that the specific death rate in that community was 10 per cent for the year of life between ages 30 and 31 years. By this method, if we had taken a complete census by ages in 1920 and another in 1921, we could construct a complete series of specific death rates and from it the whole life table."

In determining specific death rates for automobiles, Michigan motor vehicle registrations for 1923 and 1924 are utilized, since during these two years the year-model of each car registered was obtained with the other data. These registrations were published and Prof. Griffin took samples of nearly 42,000 cars from the 1923 registrations and 49,000 cars from 1924 registrations. Specific death rates were determined for these samples and the results assumed to be representative of all motor vehicles operated in Michigan and in the United States as a whole.

Death Rates in Per Cent

In Table 1 is given the specific death rates in per cent as compiled for all cars in Michigan. The rate for 1922, for example, is obtained by dividing the difference between the 1924 and the 1923 registrations of cars made in 1922 by the 1923 registrations of cars made in 1922.

New cars of 1923 were registered at different times throughout the year, of course, but they are all assumed to have been registered on June 30. In the 1924 registration, however, all 1923 cars would be registered at the beginning of the year. Therefore Prof. Griffin concluded that 1923 cars were one-half year old at the time of the 1924 registration, that 1922 cars were 1½ years old,

that 1921 cars were 2½ years old, etc. With this data and that of Table 1, it is a simple matter to construct the life curve shown in Table 2, which represents the number of cars of a given number (100,000) starting life which are surviving at the ages indicated. Pointing off three places transfers these figures into percentages applicable to any number of cars.

Plotting this data gives a curve which is very similar in shape to various other life curves and such a curve smoothed by an application of Makeham's Law is shown in Fig. 1. The accuracy of this curve as an indicator of automobile life was checked in several ways.

In making up specific death rates, Ford cars were kept separate from all others, since this segregation would break the total registrations into two parts approximately equal. Life curves of these constituent parts were constructed and they were closely similar to the general curve, with Ford cars indicated as having about one year greater life than the average and all other cars taken as a group showing about one year less than average life.

Sales and Registrations Checked

Another check was made based upon yearly net additions to registrations through domestic sales and 1923 and 1924 registrations. For example, it was found that in 1920, 106,718 new cars were placed in service in Michigan. In the 1924 registrations there were 93,396 cars of 1920 vintage or 87.5 per cent of those which started. Since the 1920 cars were on the average 3½ years old at the time of registration in 1924, this gives the 3½ year point on the life curve; i.e., of every 100 cars starting in life in 1920, 87.5 per cent were surviving at the age of 3½ years. In similar manner all points on the life curve were obtained and they correspond very closely with the life curve obtained by the method of specific death rates.

The last and most significant check made with the data was to apply them to net additions to the market in years past and compare the result with actual registrations. Thus in the 1924 registrations there should be included all the 1924 cars originally placed in use and, according to Table 2, 100 per cent of the 1923 cars placed in use, 97.7 per cent of 1922 cars, 90.8 per cent of 1921 cars, etc. The sum of all these computed figures should be equal to the total registrations of 1924. For the State of Michigan the actual registration for 1924 was 10,651, or 1.23 per cent higher than computed registration.

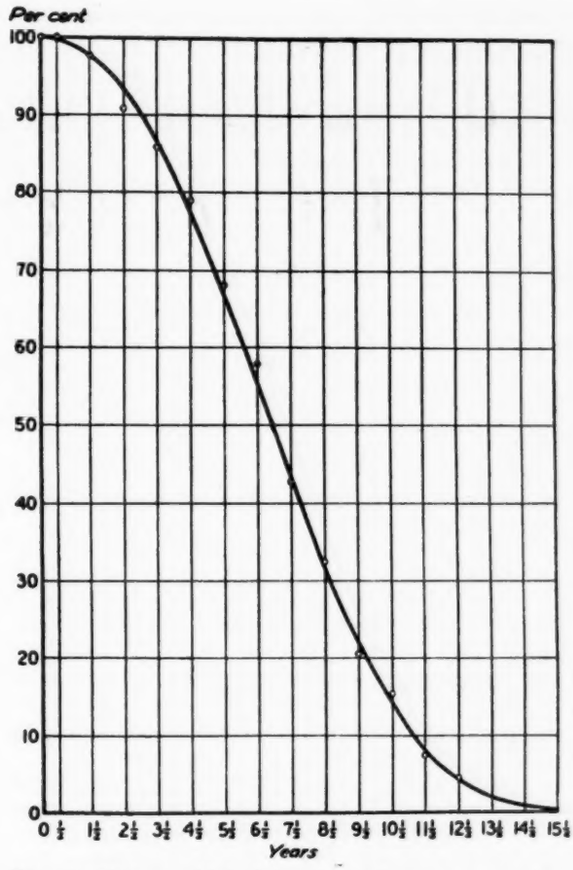


Fig. 1. Motor vehicle life curve showing percentage of cars living at various ages. For example, of all cars built 6½ years ago, 55.3 per cent are now in operation

In Table 3 is given the life curve based upon the smoothed curve constructed from the data of Table 2. Table 3 contains another set of data pertaining to expectation of life. This information is an answer to the question "How many years on the average can the cars of any given age be expected to live?"

Prof. Griffin sees in these data a means for predicting that part of the future market which is composed of replacement of cars scrapped. To do this he uses the normal "number dying" data shown in the third column of Table 3. Thus in any one year 0.22 per cent of the cars produced in that year would normally drop out (presumably through accidents), 2.05 per cent of the

Table 1

Specific Death Rate for all Cars in Michigan. (Number of each year's manufacture eliminated during year divided by number in use at begining of year).

Year Built	Death Rate in 1923
1922	2.3 Per Cent
1921	7.1 " "
1920	5.4 " "
1919	8.1 " "
1918	13.7 " "
1917	15.0 " "
1916	26.3 " "
1915	24.1 " "
1914	36.6 " "
1913	25.2 " "
1912	51.8 " "
1911	40.3 " "
1910	84.7 " "

Table 2

Number of Cars of a Given 100,000 Starting Life Which are Surviving at the Ages Indicated.

Age in Years	Number Surviving
0	100,000
½	100,000
1½	97,700
2½	90,763
3½	85,862
4½	78,907
5½	68,097
6½	57,882
7½	42,659
8½	32,378
9½	20,528
10½	15,355
11½	7,386
12½	4,409

Table 3
General Life Table for Motor Vehicles

Age at First of year	Number Living at first of year	Number Dying during the year	Expectation of life (years)
0	100,000	220	7.04
½	99,780	2,050	6.55
1½	97,730	4,400	5.68
2½	93,330	6,750	4.92
3½	86,580	8,920	4.27
4½	77,660	10,670	3.70
5½	66,990	11,680	3.21
6½	55,310	12,000	2.79
7½	43,310	11,380	2.42
8½	31,930	9,970	2.10
9½	21,960	8,010	1.83
10½	13,950	5,900	1.59
11½	8,050	3,870	1.39
12½	4,180	2,260	1.22
13½	1,920	1,160	1.08
14½	760	505	.95
15½	255	184	.85
16½	71	55	.75
17½	16	14	.62
18½	2	2	.50
19½	0	..	..

preceding year's production would drop out. 4.4 per cent of the production two years previous, etc. Then, for example, by applying these data to the net additions of each of the past 15 years it is indicated that in 1926 there will normally be eliminated 1,710,000 cars plus 0.22 per cent of the 1926 additions. In 1927 the eliminations will be 1,810,000 cars plus 0.22 per cent of 1927 net additions and 2.05 per cent of 1926 net additions.

Since eliminations of new cars are relatively few, this method can be used with considerable accuracy, it would appear, in predicting eliminations for some years in the future and thus estimating an important part of the future market for new cars. By assuming production figures for future years it is possible, of course, to apply this same method to the estimating of future registrations.

By other combinations of the data Prof. Griffin determined that the average age of all cars as of December 31, 1924, appeared to be 3.07 years. One-half of the cars then in use were less than 1.8 years old and one-half were more then 1.8 years old.

Measuring Engine Performance

OPERATION of buses of the gas-electric type will permit the Philadelphia Rural Transit Company to base their inspection and general repair work on a more satisfactory basis than mileage, through the installation of watt-hour meters to measure the actual amount of work performed by the engine.

R. H. Horton, president of the company, in a talk before the Pennsylvania Street Railway Association, said that his company was working with manufacturers of electrical apparatus to develop such a meter for measuring the power output or consumption. Although mileage has been used in the past as a measure of work done, Mr. Horton said that this was not an accurate method because of the great variation in the routes over which the buses traveled.

The output of a generator of one kilowatt hour, however, represents a certain definite amount of work performed regardless of the conditions under which it was done. Likewise it requires a certain amount of work on the part of the gasoline engine to produce one kilowatt hour and it makes no difference whether the bus is operating up-hill, down-hill or on the level. Because of this he believes that watt-hour meter readings will prove to be much more reliable indications of engine performance than mileage covered and by their use maintenance of the buses can be placed on a much more satisfactory basis.

Determining Driver Efficiency

Another advantage which he expects to gain is in the matter of determining engine and driver efficiency. Fuel consumption will be expresed in terms of kilowatt hours instead of miles and because of the greater accuracy of the former he expects to be able to keep much closer check on operating efficiencies of both engines and drivers.

After inspection and overhaul each bus will be attached to a water rheostat and operated under test with a given quantity of fuel. By this means an accurate index will be provided as to whether the generator is functioning properly and producing the correct amount of current under various conditions. A more delicate watt-hour meter will be installed and total watt-hours for the test amount of fuel will be determined. These items will provide a definite check upon the condition of the bus and should be considerably more reliable than those usually made which consist mainly of a mechanic listening to the engine to see if it sounds all right.

Gasoline consumption of gas-electric buses may be slightly more than that of mechanical drive vehicles, Mr. Horton said, although he is not yet ready to concede this point. The record for January, 1926, showed a maximum of 4.8 miles per gallon for double-deck buses with 45 per cent operating 3.3 miles per gallon or over. Single-deck buses showed a maximum of 5.5 mile per gallon with 45 per cent operating over 4 miles per gallon.

He compared this record with the record for October, 1925, of buses used by the City of Buffalo which are almost duplicates of those used in Philadelphia except that the Buffalo vehicles have mechanical drive. The gasoline consumption there averaged 4 miles per gallon or about 0.7 miles per gallon better than what might be taken as the double-deck bus minimum for the gas-electrics. In this connection, however, Mr. Horton said that while Buffalo had waged a strong campaign among its bus drivers to reduce fuel consumption no such work had been undertaken yet in Philadelphia and when this was done it might be possible to lower fuel consumption considerably.

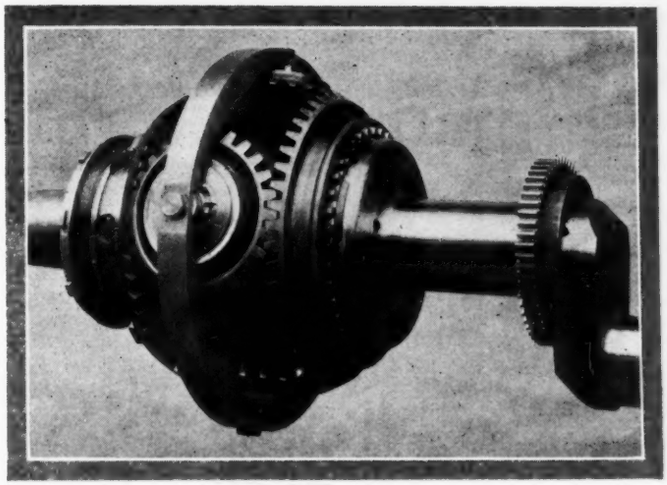
Even if gas-electrics do use more gasoline per mile, Mr. Horton said, it is a small price to pay for the other advantages gained. Gasoline costs are about 4½ cents per mile while in the matter of high average speed, where gas-electrics have their great advantage, costs are about 14½ cents per mile for wages alone. Therefore, he said, a factor which affects fuel consumption 10 per cent affects costs about 45 mills while a similar variation of average speed affects costs about 1½ cents for wages, besides reducing fixed charges through the reduction of equipment made possible by increased operating speed.

In the matter of speed, Mr. Horton said the record for February, 1926, was 10.62 miles per hour overall speed which was obtained by dividing the time buses are on the street by total mileage made. Average running speed, the quotient of miles operated by actual running time between terminals, was 12.02 miles per hour. Mr. Horton said that he would be very much surprised to learn of any other company which maintains such high average speeds as this.

French Airplane Speed Reducing Gear to be Used Here

U. S. rights to Farman invention bought by Wright Aeronautical Corp. Used abroad on commercial engines.

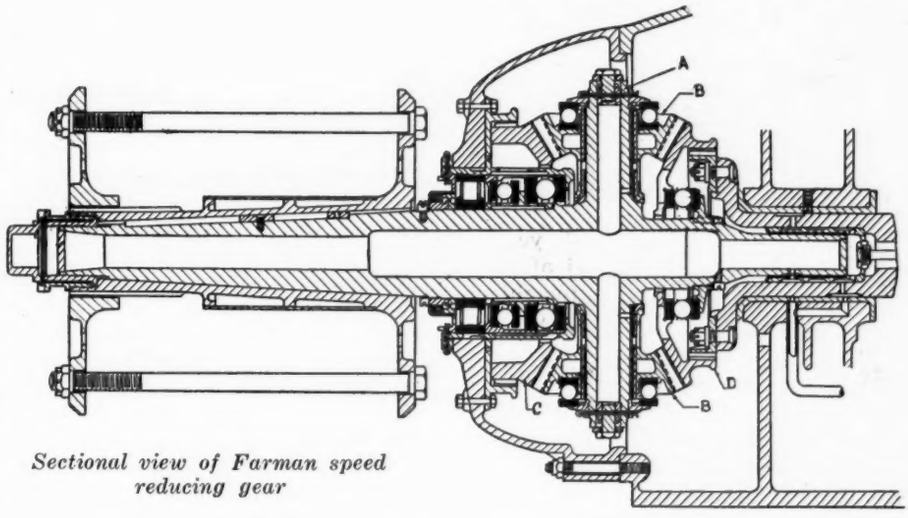
By W. F. Bradley



Photographic view of Farman speed reducing gear assembled.

THE Wright Aeronautical Corporation has purchased exclusive United States rights for the Farman airplane propeller reducing gear, which at present is in use on Farman 500 and 700 hp. commercial airplane engines. This gear is of the epicyclic type, having a reduction which is usually 1.5 to 1, but which can be 2 to 1.

The propeller shaft has forged with it the four arm differential spider A, on which the satellite pinions are mounted. These satellites are in engagement on one side with a crown wheel C fixed to the forward portion of the reducing gear housing and on the other side with a crown wheel D driven by the crankshaft and turning freely on the propeller shaft. The rear crown wheel revolving at engine speed, the propeller shaft is geared down by the satellites one-half if the fixed crown wheel is equal in diameter to the rear one.



Sectional view of Farman speed reducing gear

The front end of the crankshaft is bored out and has a plain bearing within which the tail end of the propeller shaft is received. The outer end of the propeller shaft is carried in a bearing secured to the reducing gear housing and comprises a double thrust bearing to provide for the propeller thrust. One of the patented features of this reducing gear is the method of assembling the crown wheels by external and internal ring gears, so as to simplify longitudinal adjustment between the driving and the driven member.

An external ring gear is secured to the end of the crankshaft, and this engages with an internal gear cut in the mobile crown wheel. The propeller shaft being correctly centered in the crankshaft, the degree of engagement of the crown wheels with the satellites is very easily provided for in the case of the mobile crown wheel by means of an adjusting collar and a ball thrust bearing, and on the fixed crown wheel by a distance piece between the two thrust bearings.

Lubrication has been thoroughly provided for by means of a direct supply of oil under pressure to the forward crankshaft bearing, and through this to the concentric bearing of the propeller shaft. Both the propeller shaft and the arms of the spider are bored out, oil being delivered under pressure through these channels to the satellite bearings and being maintained at a constant level in the reducing gear housing.

A CAR in which steel pressings are used to a far greater extent than in the average design has been developed by a Hungarian engineer, Eugene Fejes, who, for many years was connected with the French Westinghouse Co. of Havre in an engineering capacity, according to *The Motor* of London. A company seems to be in process of formation to manufacture the car in Great Britain.

One of the outstanding features is the chassis frame, which is of box section, two pressings evidently being seam-welded together. It is claimed that this construction gives a factor of safety of 15 with a reduction in weight of 50 per cent as compared with present practice, although the basis of the claim is not made entirely clear.

The whole of the rear axle housing is made of drawn and pressed material, the central housing consisting of two similar funnel-shaped parts into which the axle tubes are fitted.

The engine, which is of the four-cylinder valve-in-head type, of only about 76 cu. in. displacement is said to develop 34 hp. and to give the car (which weighs about 900 lb.), a speed of 60 m.p.h. The cylinders are made of drawn steel tubing and are finished by a burnishing process to tolerances of 0.0001 in., the burnishing requiring only 5 minutes per cylinder. Transmission and engine are combined in a unit power and the gearcase and crankcase are made in a single piece welded up of forgings and pressings.

German Output in 1925 Averaged Only 1154 Cars Per Factory

Entire production of 52 plants was 60,000. Sales almost at standstill during last two months of year. Further contraction in industry seen in near future.

A COMPARISON of German and American automotive production figures indicates that a strong contraction in the German manufacturing industry in the near future may be expected. A marked decrease in the number of producing companies has been under way for the past several years but the field apparently still is crowded to a ruinous point. For example: During 1924 there were 86 automobile factories in Germany which listed a total of 140 models. In 1925, judged by the Berlin automobile show last December, the number of factories had shrunk to 52, and the number of models to 79. These 52 plants turned out some 60,000 cars, or an average of 1154 per factory, and, according to Commercial Councillor Opel, had a capacity of 100,000. In the United States some 70 manufacturers last year produced over 4,000,000 cars.

In America the average production per factory was around 60,000 cars, or about as many as were turned out by the entire German industry.

These facts are taken from an account of conditions in the German automobile trade given recently by Johannes Buschmann, general manager of the German Automobile Dealers Association, in the general report of that association for 1925.

The report says that of the series of "crisis" years through which Germany has passed since the end of the war, 1925 was the worst. Conditions in the automobile industry paralleled the general economic conditions to a large extent. The result was the least favorable year for the automobile trade since the end of the war. Although it began very promisingly, and the demand was quite lively during certain periods, notably during the second quarter, the almost absolute cessation in the demand beginning in August was catastrophic. Quite a large number of firms in the trade made no sales of cars at all during the last two months.

Affected by Stock Market

The automobile business has always been very sensitive, Mr. Buschmann observes. It reacts spontaneously to the fluctuations of the stock market, and in certain districts it is a true barometer of the state of prosperity of the local industries, while in the predominatingly agricultural sections it reflects the economic condition of the farming population. Recently it has been influenced strongly by the taxation policies of the Government and by the money stringency, for which latter the Reichsbank is held responsible.

It is to this tightness of the money market that the decline in sales during the last quarter may be traced directly. Many owners of cars, pressed for ready cash, were compelled to dispose of their machines, and this caused a glut in the used car market. In many cases these second-hand cars came into direct competition with new cars. Another factor affecting market conditions was that manufacturing firms in financial difficulties were compelled to assign cars to their creditors, which cars were then thrown on the market at reduced prices.

On the other hand, many of the cars sold during the first half of the year were not taken by the purchasers in the end, in consequence of the growing stringency of capital. In view of the market situation which had developed in the meantime it was also impossible to dispose of them elsewhere.

Left With Large Stocks

The economic situation changed so rapidly and so violently that even conservative firms could not help ending the year 1925 with large stocks on hand, which tied up their capital and the credit available to them. Many of the receiverships in the trade were merely an expression of the impossibility of liquidating stocks, which was due to the causes cited.

During the first half year deliveries by the manufacturers were in general insufficient to meet the demand, and the delivery periods required by the manufacturers show that at that time production was incapable of keeping up with demand. This made it impossible for the trade to take full advantage of the favorable situation. The productive capacity of the industry was being increased and it was its tragic fate that just as the increased facilities became available the general economic depression made it impossible to fully utilize them.

During the first few months some of the manufacturers raised their prices, probably more to take advantage of the favorable market situation than by reason of any increase in cost of production. The lifting of the embargo on imports, in connection with which not all of the hopes of the industry with respect to tariff protection were realized, but more particularly the automatic reduction in tariff rates through the conclusion of the German-Italian commercial treaty, compelled price reductions, which, however, in view of the hopeless condition of the business, could no longer enliven the market. During the final months of the year the many emergency sales produced a rather confused and irregular price situation.

The reorganization of production methods, so often referred to, has undoubtedly had very noticeable results in some works. Dealers who handle the products of these firms had greatly increased sales during the first half of the year, and they did a tolerable amount of business even during the period of general stagnation.

In the meantime there have been more or less public

discussions of far-reaching plans whereby, through specialization in production on the one hand and consolidation of works on the other, both a lowering in the cost of the products and an increase in the profits earned are to be effected. These plans are worthy of the closest attention of the trade, whose conditions of existence will be greatly affected thereby. Mr. Buschmann thinks that a strong contraction in the German industry is unavoidable.

The point of view of the German automobile buyer appears to have changed radically during the last few years. The de luxe or sport model, built for making speed records and for snappy appearance, has entirely lost its vogue, and the deciding factor in the selection of a car now is its utilitarian value as a means of transport.

Mr. Buschmann thinks that this change in the attitude of the German buyer will be more clearly reflected by the production schedules of German makers in the near future. It is characteristic of the trend in the demand that the dealers of that German firm which took the lead in the movement toward the popular-priced utility vehicle report a large increase in sales. The tendency is also toward the smaller or lower-powered cars of 5-10 tax hp., though the importation of considerable numbers of American cars, which, though low in price, are not small on the basis of the tax formula, tends to conceal this tendency.

The demand now also comes from different social and economic strata of the population. The demand now comes chiefly from those busily engaged in professional or trading occupations, who wish to increase their productivity and their income with the aid of that modern means of transport, the automobile. Many large firms now supply their traveling representatives with cars.

For a number of years the dealers' association was negotiating with the Association of German Automobile Manufacturers with a view to arriving at an agreement regarding a revision of the standard form of dealer's contract so as to better safeguard the dealers' interests. However, toward the end of 1924 the manufacturers' association broke off these negotiations, and nothing further has been done in the matter. What the dealers object to in the present standard form of contract, as originated by the manufacturers' association, is that the privileges and obligations are very inequitably divided, the large deposits required, arbitrary delivery dates, binding the dealer to take cars contracted for without compelling the manufacturer to deliver, enjoining dealer from handling other makes, etc. These objections, Mr. Buschmann says, are as valid today as ever, and the experiences of the past year have only served to emphasize their reasonableness. It is believed that the opening of the market to foreign cars on October 1 last will have a salutary effect in this connection, more particularly since foreign makers in many instances are offering more reasonable contracts.

Model Contract Drafted

The association has worked out a contract form covering automobile dealerships, which the members can use as a basis in their endeavor to secure reasonable conditions, and which they can contrast to the standard form of the manufacturers' association. Recently a contract form covering motorcycle dealerships has also been worked out.

During the year 1925 the most important trade-political decisions since the end of the war affected the entire German automobile business. There came first the lifting of the embargo on imports on September 30, then the application of the new increased duties on October 1, and, finally, the automatic reduction of duties on imports from all most-favored countries through the going into effect of the German-Italian commercial treaty on December 16.

The dealers are not particularly satisfied with the present duties, and it is feared that they will have the effect of making car prices very high. The first date for the reduction of duties, July 1, 1926, is therefore looked forward to with anticipation.

The imports of foreign cars, and particularly American cars, are hampered by the formula made use of in calculating the tax. The buying public has become accustomed to classify cars according to this formula and cannot be easily induced to pay the higher tax for the American car. This also is the reason why the German industry is now opposing a change in the method of tax-rating, although formerly it agitated energetically in favor of such a change.

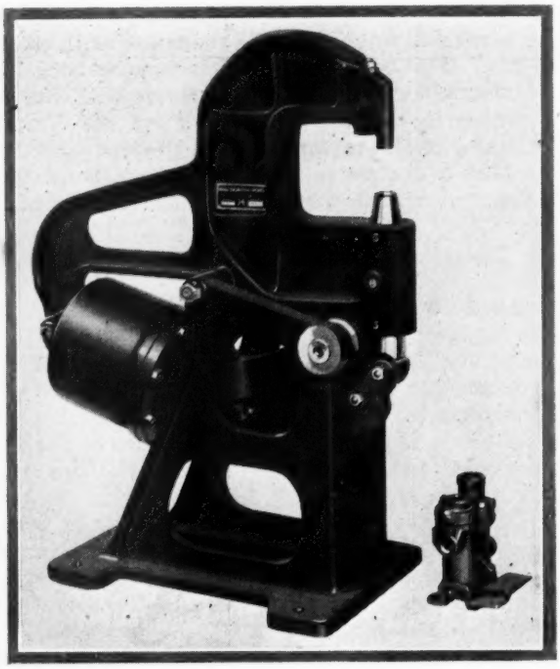
International Court Proposed

Experiences with foreign manufacturing firms have not been unfavorable on the whole. However, it has been necessary for the association to intervene in a number of cases in which terms were to be imposed which did not conform to German conditions. Particular attention was given to a question which will prove of the greatest importance to the import trade. Foreign manufacturers who have no branch in Germany in their contracts stipulate that any disputes arising must be brought before the courts of their own country. The disadvantages to the German dealer of such a clause became very apparent in a specific case which came to the attention of the association and led the latter to a discussion of the point with foreign manufacturers' association. Just what the results of these negotiations will be cannot be predicted as yet. It is possible that an international court of arbitration will be decided upon, as exists in the cotton trade at the present time, and Mr. Buschmann says he believes that such an institution, attached to the International Association of Automobile Manufacturers Association, which has its headquarters in Paris, could be created. Of course, in that case it would be necessary for the American National Automobile Chamber of Commerce to join the association.

Previous to 1925 there was in Germany no organization for financing automobile sales. Of course, credit has always been extended, when necessary, to the purchaser of an automobile. The note taken by the dealer could be either passed on by him to the manufacturer or else he could have it discounted by his bank. If it became necessary to exceed the three-months' limit, an extension was granted for a part of the amount. This method, however, became practically impossible when the Reichsbank greatly limited its credits. The management of the Reichsbank was approached repeatedly in this connection and the association was given to understand that there was no rule that automobile paper should not be discounted, but the fact remained that it was not.

During the past year Germany has adopted the American and French methods of financing credit sales, that is, the remainder of the price after a down-payment of 25 or 33 1/3 per cent is paid in twelve monthly instalments. A number of special banks were created in Germany for this purpose, which, however, operate almost exclusively with foreign capital. Unfortunately, some of these financing institutions, misled by the great demand for cars and the zeal of the dealers in making sales, thought that they could make almost any terms they liked. That was a mistake, and the buying public has been rather hesitant in taking advantage of these expensive credit facilities. Recently, however, these institutions seem to have come to the conclusion that it pays to be reasonable, and increasing competition in this field, also have tended to lower the rates and to ameliorate the terms.

What's New? • *Developments*



The new Hanna riveter

Hanna Rapid Riveter

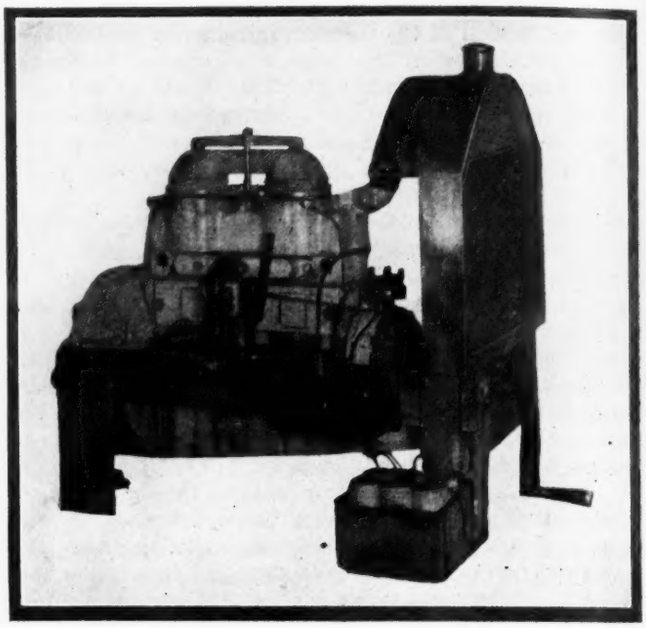
A NEW rapid riveter which permits of inserting rivets from above and driving them from below has been brought out by the Hanna Engineering Works, Chicago, Ill., and is illustrated herewith. With this machine as many as fifty strokes per minute may be obtained.

The mechanism is a combination of a simple lever and a toggle, which combines a long die stroke with uniform pressure over a comparatively wide range of motion, thus eliminating the necessity for screw adjustment of the die. As the die approaches the work, its travel is very rapid, and it then slows down gradually up to the beginning of the uniform pressure range. The advantage of such a die stroke is that the speed is greatest where the work is lightest, and as the rivet head forms the pressure increases and attains a maximum, which is maintained for several inches of piston travel. Ordinary variations in rivet lengths and plate thicknesses are automatically taken care of by the wide range of uniform pressure.

This riveter is made in sizes capable of driving ¼ in. to ½ in. rivets hot and 3/16 to ⅜ in. rivets cold, and it can also be used for punching.

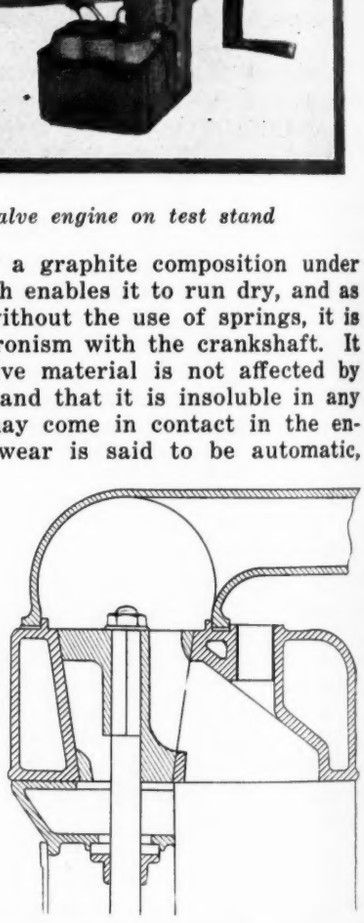
Heymann Rotary Valve Engine

THE various difficulties which have been encountered in the past with rotary valves are claimed to have been removed in a new design due to E. & F. W. Heymann, of Boston, Mass. A sectional view of the upper part of the cylinder and valve chamber of this engine is shown herewith. It will be seen that the valve is of conical form and is located in a chamber adjacent to the cylinder head. It makes one revolution to four revolutions of the crankshaft and serves for both inlet and exhaust, hence one of these rotary valves takes the place of four poppet valves.



Heymann rotary valve engine on test stand

The valve is made of a graphite composition under hydraulic pressure, which enables it to run dry, and as it is positively driven, without the use of springs, it is always in perfect synchronism with the crankshaft. It is claimed that this valve material is not affected by the heat of combustion and that it is insoluble in any liquids with which it may come in contact in the engine. Adjustment for wear is said to be automatic,



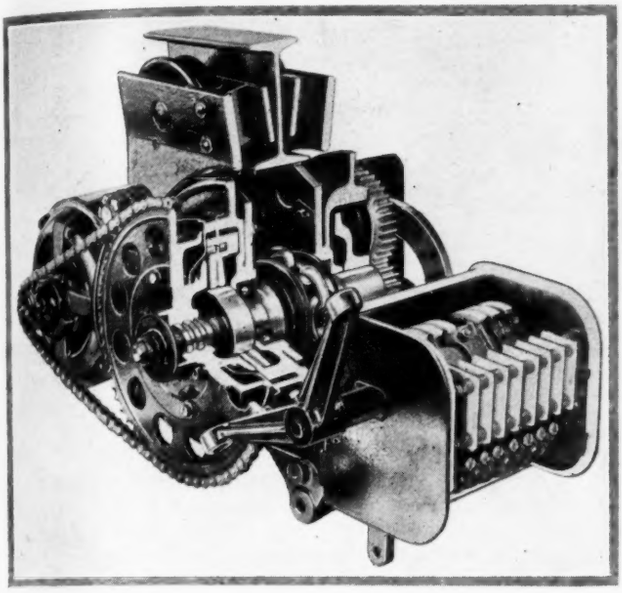
Section through Heymann rotary valve

so that the valve always remains in perfect contact with its seat. No packing is used, and extended use in the engine of which a photo is shown herewith is said to have shown no appreciable wear.

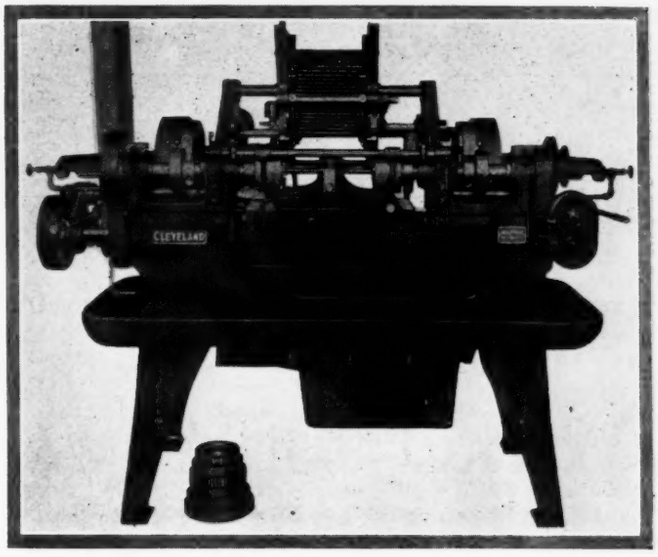
Yale Electric Chain Hoist

THE Yale & Towne Mfg. Co., Stamford, Conn., has developed a new ball-bearing electric chain hoist known as Model 20 B. It embodies such features as close head-room, long lift, high speed, and automatic top and bottom limit stops. This hoist can be quickly adapted

# of Interest to the Industry



Sectioned view of Yale Model 20 B electric chain hoist



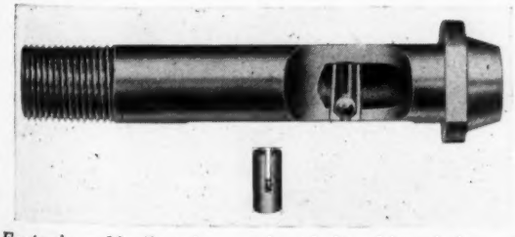
Cleveland Model J double end operation machine

for use on any overhead system, as the side plates of the trolley carriage can be spaced on steel bars to fit the desired beam flange. Electrically welded steel chain can be furnished for any length of lift. The mechanism is fully enclosed in oil-tight chambers. Current consumption is reduced by the use of ball bearings on the load sheave.

Steel chain containers can be furnished to hold any length of slack chain up to 60 ft. for ¼, ½ and 1-ton hoists and 30 ft. for the 2-ton hoist.

Fostoria Self-Oiling Bolt

A SELF-OILING bolt, suitable for use as king bolt, spring bolt or tie rod bolt, has been placed on the market by the Fostoria Screw Co., Fostoria, Ohio. As may be seen from the accompanying sectioned view, an oil hole is drilled centrally in the bolt from the head end;



Fostoria self-oiler for spring bolts, king bolts, etc.

another hole is drilled through the wall of the bolt, and a little nipple containing a steel ball is set in. The ball evidently serves as an oil valve which is operated by the vibration of the car.

Double End Screw Machine

A NEW model added to the line of the Cleveland Automatic Machine Co., known as Model J, departs from the usual practice in automatic screw machines of revolving the work while the tools remain stationary. In the Model J Cleveland the tools rotate and are carried onto the work held in a stationary center chuck.

Rapid production of work requiring end operations, such as threading pipe nipples and studs, milling bearing diameters on both ends of shafts or drilling and chamfering both ends, is accomplished simultaneously. The machine is built in two sizes, the smaller of which threads nipples up to ¾ in. pipe size and studs up to ¾ in. dia., both in lengths from 1½ to 12 in., while the larger has a capacity up to 2 in. pipe nipples and 1½ in. dia. studs, in lengths of from 1½ to 14 in.

The machine is equipped with a Cleveland hopper magazine located in the center, which is arranged with oscillating levers timed from the camshaft, to control the dropping of the parts to sliding conveyor fingers, which carries each piece to the air-operated floating center chuck. A mechanically operated chuck can be furnished if desired.

Electric Soldering Irons

THE General Electric Company is marketing a new soldering iron of light construction, designed to heat up quickly. This iron is made in standard sizes ranging from ½ in. to 1¼ in. tip. Power consumption ranges from 70 watts for the smaller iron for light and intermittent use, to 350 watts for the larger size on heavy duty. The irons for heavy duty are provided with radiating stands for the purpose of maintaining them at the correct operating temperature when temporarily not in use. The rapid rate of initial heating is brought about by unusually good heat conduction between the heating element and the copper tip. Heat from the tip is prevented from reaching the handle by the use of a spiral made from a steel rod, which also provides a rigid connection between the handle and tip.

For the electrical insulation of the heating unit use is made of a powder (instead of the mica usually used in soldering irons.) This powder is claimed to be capable of withstanding temperatures of more than 2,000 deg. Fahr.

A fleet of 2-ton trucks used by one of the gasoline distributing companies in South Africa. The use of much heavier motor trucks is rendered impracticable by the high cost of gasoline—55 to 80 cents a gallon

Market for *Light Trucks* Developing in South Africa

High cost of gasoline is important factor in operation of motor vehicles, and consequently steam tractors are used for nearly all heavy haulage.

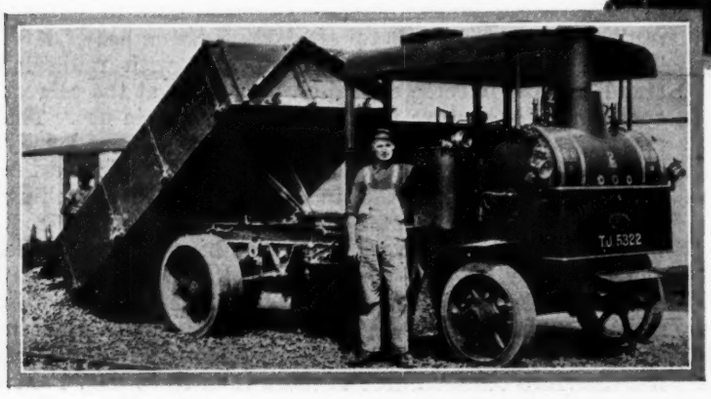
By M. Edward

WHILE British South Africa has been thoroughly motorized of recent years, the use of trucks has not become as general as cars, a fact that is due chiefly to the high cost of gasoline.

The market is, however, an interesting one from the American truck manufacturer's point of view for it has potentialities that are really in excess of the limited population. South Africa is a country of big schemes, great gold-mining and power concerns, and is in every way thoroughly up-to-date.

The manufacturer, situated nearly 7000 miles away, cannot perhaps realize the peculiarities of the market, and the necessity for investigation by factory representatives is a very real one.

Those concerns who have sent representatives to South Africa have obtained first-hand information that would be almost unbelievable if brought to them by any but their own field men. The first big factor in the market is that in no part of the sub-continent can gasoline be obtained for under about 55 cents a gallon—and in many inland areas it is as high as 80 cents. Alcohol fuel at a few cents less is procurable, but chiefly in the Province of Natal, where it is manufactured as a by-product of the sugar-cane industry.



The South African has been "sold" on the steam tractor for heavy haulage. Consequently, vehicles of the type shown here are used in large numbers. Virtually all of them are supplied by British manufacturers. The picture directly above shows one of these tractors handling four trailers, each loaded with a shipping box containing a Buick automobile

This high price of gas has naturally handicapped the motor truck and the horseless (or rather "ox-less") age will be a long time in coming. Nevertheless, there is a good market open to manufacturers of the right kind of motor trucks for the South African user of transport.

One of the things the investigator of conditions learns quite early is that more motor trucks of over 2 or 2½ tons capacity were sold in South Africa three years ago than since then, this being due to the victory of the steam wagon. As there are no American steam trucks procurable in South Africa, it naturally follows that all the vehicles of this class come from Great Britain. This is a field that the American manufacturer seems to have neglected, due, no doubt, to the low price of gasoline in the United States.

But in passing steam by, the truck manufacturer has relinquished his hold upon a big and developing slice of transport business in other British dominions besides South Africa. And this being so, it behooves him to make the best of the market left—the light truck field. In this field American-made trucks are well represented, for the great proportion of these vehicles on the road are the products of American factories.

The steam wagon makes good only in the heavy-haulage field, and becomes indubitably the proposition for loads of three and a half tons and over, being made to handle loads of from five to ten tons. Steam wagons are generally thought of as cumbersome and slow-moving things, relics of the olden day traction engines. But although large and heavy, the modern steam truck is by no means cumbersome and it can generally show as good (or better) average speed than a gas truck of the same capacity. For example, there are a number of the new "Super-Sentinel" five and seven-ton jobs in use in South Africa, capable of making extraordinary average speeds over long runs. Under favorable conditions 30 miles an hour is possible.

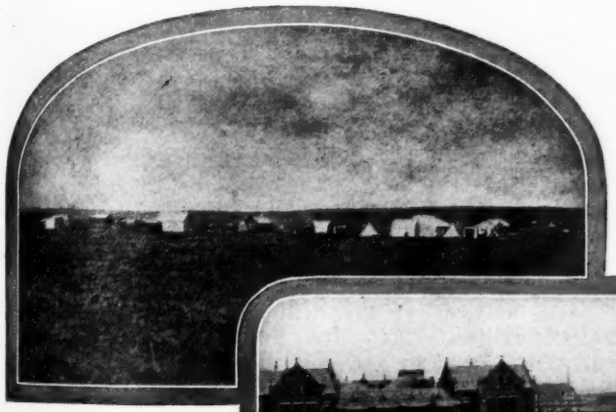
A Super-Sentinel recently made a journey of 400 miles from Durban to Johannesburg in the remarkably good time of 31 hours—an average of approximately 13 m. p. h. A full load of seven tons of merchandise was carried over roads that would be called trails in America. The cost of operation of a steam wagon in South Africa is considered to be about a third of that of a motor truck. The fuel used is coal, and as the Union is a coal-producing country, it will be seen at what handicap the motor truck is operated. Coal is certainly not a clean or convenient fuel to handle, but it is cost that counts.

Among the largest users of motor trucks in South Africa are the government-owned and operated railways. Progressive leaders in the transport field on rail and road, the South African Railways have experimented with all types of motor and steam trucks and have now definitely come to the conclusion that for economical country work the light, speedy type of motor truck is needed—not above 2½ tons capacity.

In the cities steam trucks and tractors are used for the heavy delivery work, a specially designed type of the latter being most populer. The steam tractors in use have large driving wheels and can haul from two to four loaded trailers, sometimes taking as much as fifteen tons at an average speed of eight miles an hour. Motor trucks are also used for heavy work, but not nearly as extensively as previously. For further details of the South African Railways' experiments and conclusions in the truck field I can refer manufacturers to the offices of the newly-appointed South African Trades Commissioner at 11 Broadway, New York.

The best-known American light trucks in use in South Africa at present are Graham, Reo, Chevrolet, and Ford. There are others, of course, but the large fleets are composed of those mentioned. Fleets of trucks do not, as a rule, run above ten or twelve and most

Johannesburg



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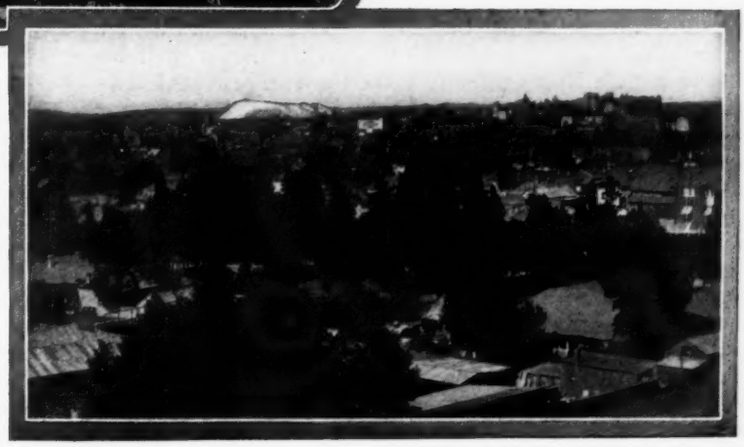
1901



1926

Johannesburg is the metropolis of British South Africa. Starting as a mining camp in 1886, it has grown into a splendid modern city with a population of more than 300,000, of which 163,000 are whites. It now has about 10,000 motor vehicles, including trucks and motor cycles

of the trucks are owned in the urban areas. Farmers are slow in taking up light motor trucks although some of the larger cooperative concerns operate fleets.

A thorough survey of country as well as city conditions is necessary to the factory about to embark upon putting its trucks on the South African market.

There are many sales angles to be studied. First is the service side. The Union has suffered from trucks placed on its town and country markets without proper service backing, and this has led to wariness among buyers. Operators of trucks now want to know just what service they can expect, and it will readily be understood that the problem of service in such a large, sparsely-inhabited area as South Africa is a difficult one.

It is only in recent years that the truck business has been taken on its merits. It was at first considered that the market was too small to trouble about, but a considerable amount of spade work in development was done by car dealers handling trucks as a side line. It has been asserted that these dealers really lost on their truck business. They had to keep chassis in stock for long periods and then perhaps sell below cost. They made mistakes regarding the body types ordered, for they did not know the market. Today, with the exception of stake and platform bodies and special tipping models, only chassis are imported, and all the body-building is done locally.

But these dealers blazed a trail. They showed that the country could assimilate trucks, even when unscientifically sounded as to sales-possibilities.

Today it is necessary for the manufacturer wishing to get his share of the rapidly increasing truck business in South Africa to bear in mind the following points: He must not waste time trying to convert the user of steam transport—that is to say he must confine his campaign to the furthering of trucks of capacities not exceeding at most 2½ tons. The point of service must be gone into thoroughly. Arrangements for dealership should be made with one well-known car distributor in each of the four Provinces—Natal, Cape of Good Hope, Transvaal and Orange Free State. The Transvaal dealer will be able to handle Rhodesia, and the Cape of Transvaal concern will be able to look after South West Africa. Portuguese East Africa can also be watched from the Transvaal—or from Natal. Thus the sub-continent will be efficiently covered.

Attempts on the part of manufacturers to create service stations of their own, or to encourage machinery dealers to take up trucks, have not been very successful. The car dealer is about the only one able to take care of the business properly, for he has an organization that is able to sell and service in the far-away villages. It must be borne in mind always that vast distances separate the larger towns—sometimes 300 miles, and that many of the so-called towns are only hamlets.

AT present there are some 5,000 motor and steam trucks in use in the Union of South Africa alone, not counting Rhodesia and the Southwest Protectorate, and it is estimated that there is room for thousands more in the immediate future.

American motor vehicles are preferred above all others in South Africa and the American truck manufacturer is in a favorable position to push the sale of his products and get the bulk of the business developing there, it being understood that the market is limited to types of not more than 2½ tons capacity.

This is the third and last of a series of articles written by Mr. Edward, a resident of Johannesburg, for *Automotive Industries*. In the first he dealt mainly with the market for passenger cars. The second analyzed the field for motor buses. The present article describes the situation in regard to trucks.

The dealer to whom a truck franchise is given will appreciate a visit from the factory representative once a year or so, and the help given by the contact man will be put to practical use on both sides. The personal touch is essential in order to maintain good relations in the foreign field, as also to enable the factory to keep in direct touch with methods of competitors in a rather highly-prized and growing market. British trucks have a fair footing in South Africa and in the remaining examples of the heavy types their makes predominate. The French and Italian manufacturers have also given products that have served satisfactorily, but America can win out by careful attention to types required.

At present there are some 5000 motor and steam trucks in use in the Union of South Africa and it is estimated that there is room for thousands more in the immediate future. The mines, of course, employ trucks, steam and gas, and young industries as well as stores in the cities are increasing users. The operation of trucks has been brought down to hard figures, and the customer no longer buys without knowing what his maintenance costs are going to be. The car dealer handling trucks (and back of him the manufacturer) who is able to give the best information, statistical and advisory, to his customers embarking upon the use of modern transport, will win out, for this has been proved. A certain make of American speed truck is best known throughout South Africa simply because of the informative sales-methods of the dealers handling it, coupled with the availibility of spare parts. These dealers were directly appointed by the manufacturers.

The truck field has just passed the early stages in British South Africa and real development has begun. The potentialities, in spite of bad roads and sparse population, are only being realized. Roads are improving and 1926 will see the beginning of a national scheme of trunk highways. This will, of course, help truck business enormously. The American truck manufacturer with his mind on foreign fields to conquer would do well to make a scientific study of possibilities in Africa, south of the equator, with special attention to the Union of South Africa, the best populated and most progressive area.

PORT ELIZABETH is in a fair way to become the automobile center for the Union of South Africa. The first firm to establish an assembling plant at the place was the Ford Motor Co., and now it is announced that the Colonial Motors Corp., which represents the Chevrolet and Buick among other General Motors cars, is planning an assembling plant and distribution center to be located there. It is understood that extensive factory and warehouse buildings will be erected, and that much equipment will be installed. The Ford Motor Co. so far has been established in Port Elizabeth in leased quarters, but is said to also contemplate the erection of its own quarters, probably some time in the near future.

EDITORIAL

Another Rubber Holdup?

CONTINUANCE of the downward trend in rubber prices may not come about as expected if the plan reported under way by nine big British rubber producing groups should prove successful. Nine of the largest producing groups have organized quietly, according to a dispatch published in the Philadelphia *Public Ledger*, for the purpose of stabilizing rubber at a 60-cent minimum price level.

The groups involved control about 11 per cent of the world's production and have agreed, it is reported, to sell rubber freely when the price is above 60 cents and to withhold it when it is below that level. Because demand for rubber exceeds supply at present, it is believed that the rubber market is sufficiently sensitive to respond to price manipulation of this kind, even though the manipulators control only 11 per cent of the total output.

Whether or not this latest British move will be successful in compelling rubber purchasers to continue to pay at least 30 cents in excess of what was said by British representatives to be a fair price, should become apparent before very long, since spot rubber quotations in New York on March 30 were already slightly under 60 cents while prices quoted for September delivery were as low as 56.2.

American action in regard to the rubber situation already has resulted in a considerable break in rubber prices and various interested agencies are better ready today to take further action if necessary than they were six months ago. It is almost certain that artificially stablized prices still far above the generally accepted "fair" price will not be accepted by American consumers without resistance.

Waste of Engine Oil

WE often hear of the wonderful economies that are being effected in our largest and best equipped factories by utilizing what are ordinarily regarded as waste products, and it would sometimes seem that the automotive industry had gone the packing industry one better, despite its boast that it wastes nothing but the squeal. But while economy of labor and of material are carefully looked after in the factories, there would seem to be considerable waste in connection with cars once they get into the hands of the owner.

An example that comes to mind is that of lubricating oil. In a new car the lubricating oil is thrown away after it has served for 500 miles running, and thereafter it is made to do for 1000 or 1500 miles. The actual loss of oil by burning or leakage is very slight, especially if the service is light so that the engine runs usually quite cool; hence the greater part of the oil that is put into the crankcase is actually thrown away after a short period of use—not because it has been deprived of those elements which make it valuable as a lubricant but because it is contaminated with grit and fuel. This condition, of course, is improving with the introduction of air cleaners, oil filters and distillators.

In the case of large public service corporations a beginning is now being made with the reclamation of the oil, and undoubtedly the gain will be a two-fold one, in that there will be on the average a better lubricant in the crankcase and less new oil will have to be bought. But to every car in use by large public service corporations there are probably a hundred in the hands of private owners, and in their case the waste will go on for a long time to come, except insofar as it is offset by the filtering devices mentioned or, perhaps, by the use of the new pre-diluted oil recently announced and claimed to be almost immune to dilution beyond the danger point.

Airplane Inspection

ONE important feature of the Bingham-Parker aircraft regulation bill, which has passed the Senate and is now before the House, is the provision requiring the Secretary of Commerce—under whose supervision the bill would place aeronautic affairs—"to inspect each aircraft before it is used in commerce and to certify as to its condition, capacity and safety at the date of inspection and to make the information contained in such certificate available to the public is such manner as he may prescribe."

Some observers see in this provision a handicap to small operators because the bill provides also that the owner of the plane shall pay a fee to cover the cost of inspection. On the other hand, it is almost certain that required and enforced inspection would aid materially in the development of commercial aviation as a whole by eliminating from use old, imcompetent planes which are likely to cause accidents and thus weaken the public's confidence in the safety of flying.

In an article about the "gypsy" flyer in our March 18 issue, Leslie S. Gillette pointed out that aviation as a commercial industry will receive much better support from the public when steps are taken to bar unsafe, obsolete craft from the air. That statement is almost sure to be borne out by future developments.

There can be no overestimating the importance of safety in commercial aircraft development. For passenger carrying particularly, and for freight haulage to a large extent, safety will be one of the major requirements of those purchasing air transportation.

The machines not only must be safe, but the public must be convinced that they are safe.

AUTOMOTIVE NEWS SECTION INDUSTRIES

Philadelphia, Pennsylvania

Thursday, April 8, 1926

Retail Sales Near Volume Set by Factory Schedules

PHILADELPHIA, April 8—The industry continues to make new records. The total of 447,185 set a March production mark, and brought the first quarter's aggregate to 1,138,409 vehicles, a record for the period. The better weather of the last three weeks has caused the expected upturn in sales and for the first time in several months they are nearly equal to production, and should shortly be running well ahead of the output rate of the factories.

Business from the beginning of the year has been bettering the averages of recent years, in sales as well as in production. Therefore dealers' stocks, while heavier than they were a year ago at this time, are not too great to be absorbed without difficulty in the next six or eight weeks.

Several companies reported individual sales records for the last two weeks in March. In fact, all indications point to a remarkably strong spring market and one of the best first half-years the industry has ever experienced. Some slackening later on is looked for, as many capable observers expect that sales and production in 1926 will about equal 1925—an eminently satisfactory year for all concerned, but which got off to a slow start, with greatly curtailed production in the first quarter.

Whatever increase is shown this year over last will probably be due in large measure to export sales, which are expected to run from 100,000 to 200,000 higher. On the basis of results to date, truck and bus business should also show a substantial gain, unless the general industrial situation takes an unexpected turn for the worse.

With automobile prices holding well at previously established levels, with raw material prices still tending downward, and with high rates of production, the manufacturing companies are in excellent financial condition. Inventories built up during the winter are now being turned into cash, enhancing their position in this respect.

Dodge Brothers Set New Delivery Mark

DETROIT, April 8—Combined sales of Dodge Brothers cars and trucks and Graham Brothers trucks for the week ending April 3 were 9104, a new high weekly mark according to factory statement. The new figure represents a gain of 41 per cent over that of the same week last year when total sales were 6458, and a gain of 11 per cent over the preceding week this year.

Combined car and truck sales for the four-week period ending April 3 were 30,912 as compared with 18,516 for the four weeks of February this year.

Ford 1925 Profits $20,000,000 Lower

Assets Show Nearly $100,000,000 Increase — New Model Expense Carried in Year

BOSTON, April 8—Profits of Ford Motor Co. were approximately $20,000,000 lower in 1925 than in 1924 as nearly as can be estimated from the annual financial statement filed with the Massachusetts Commissioner of Corporations. Calculated on the basis of the year's increase in surplus, plus the usual dividends of $14,670,000, operating profits were estimated at $94,560,397, compared with indicated profits of $115,105,416 in 1924.

Assets of the company are expanded, however, from $644,624,468 to $742,913,568, an increase made up of a $20,000,000 gain in real estate holdings and valuations, a $9,000,000 gain in machinery and equipment, a $12,000,000 gain in inventory, and a $57,000,000 gain in cash, receivable and securities. An item of $20,517,985 carried as good will in the 1924 statement is evidently included in the cash item this year, which is designated as including patent rights, etc. If the good will item has been written off the earnings were approximately $20,000,000 higher.

The shrinkage in profits may be due to some extent to the large outlays made during 1925 for steel mill equipment, for additional real estate holdings and for new equipment in its main and branch plants incidental to its new models. The Ford company introduced a considerably changed line in September which, in addition to involving large expenditure for new equipment, also threw the company out of systematic production for several months. This was the first time in several years that the company was obliged to absorb new model expense.

Earnings on each of the 172,645 shares of stock, held entirely within the Ford family, approximated $547.71 as against $667.48 the preceding year. On the basis of the new balance sheet, the value of each share is now indicated as about $6000, making the total stock valuation in excess of $1,000,000,000.

A comparison of the 1925 and 1924 financial statements follows:

ASSETS		
Real estate	$132,107,208	$112,030,755
Mach., equip., etc.	124,445,908	115,089,863
Inventory	107,631,138	95,254,936
Cash, debts receivable, securities, patent rts., etc.	377,105,078	300,275,847
Good will		20,517,985
Deferred chrgs.	1,624,236	1,455,082
Totals	$742,913,568	$644,624,468
LIABILITIES		
Capital Stock	$17,264,500	$17,264,500
Mortgages	145,000	145,000
Acct. pay'bl., etc.	76,633,613	56,430,618
Reserves	26,503,562	28,307,853
Profit and loss surplus	622,366,893	542,476,497
Totals	$742,913,568	$644,624,468

Buick March Total Sets All-Time Mark

FLINT, April 8—Car shipments by Buick Motor Co. in March totaled 25,305, establishing a new high all-time record. The best previous mark was set up in February when 23,290 were shipped. In the eight months since the current models were introduced the company has broken by approximately 1600 cars its highest previous shipment record for an entire fiscal year.

During this period practically every Buick production and shipment record since Buick was formed 23 years ago, has been smashed.

Oakland Sales High

PONTIAC, April 8—March output of Oakland and Pontiac cars totaled 12,035. Pontiac models are now being built at the rate of 300 daily. Upwards of 10,000 were built and sold in the first three months of 1926. Oakland output and sales in the first quarter were approximately 70 per cent higher than for the 1925 quarter.

Peerless Adds Models

CLEVELAND, April 8—Deliveries have started on two new Peerless sport models on the 80 six-cylinder chassis, the phaeton priced at $1395 and the roadster at $1495. The cars are upholstered in tan Spanish grain leather with top and curtains to match and are nicely trimmed throughout.

New Speedwagons Out

LANSING, April 7—New models of its speedwagon trucks have been brought out by Reo Motor Car Co. to supersede the present 1¼ ton and 2 ton models.

Treasury to Repay $3,000,000 in Taxes

New Car Stocks on Hand March 29 Estimated at Approximately $100,000,000

WASHINGTON, April 8—A total of approximately $3,000,000 will be refunded to automobile manufacturers by the Treasury in the readjustment of the new automotive excise taxes, which in turn will be adjusted by manufacturers with agents and dealers.

This sum represents the difference between the old 5 per cent tax and the new 2 per cent tax on passenger cars, which became effective on March 29, and which the government agreed to rebate on all cars in the hands of the dealers and agents on March 29.

An appropriation of $1,000,000 in money was asked by President Coolidge this week, in a letter to Congress, which estimated that a total of about $3,000,000 would be required to rebate the retroactive tax. Of the total sum needed, $2,000,000 will be adjusted through credits taken by the automobile manufacturers on their monthly tax returns for the month of March.

No figure is given as to the number of passenger cars in stock on March 29, when the reduction became effective to the public, but their value is estimated by the Treasury Department to be roughly $100,000,000.

Car Depreciation Ruled 25% Yearly

WASHINGTON, April 7—The taxable depreciation of automobiles has been placed at 25 per cent per year, according to a decision announced this week by the U. S. Board of Tax Appeals.

The board's decision virtually overrules the ruling of the Bureau of Internal Revenue which generally has allowed deductions of but 20 per cent per year.

Gardner Elects Board

ST. LOUIS, April 2—All directors of the Gardner Motor Co., Inc., were reelected at the annual stockholders' meeting. Russell E. Gardner is again chairman of the board, the other members being R. E. Gardner, Jr., W. H. Yeldell, Fred W. Gardner, Ralph Hornblower, Oliver J. Anderson and Thomas Reyburn. Sales of Gardner cars for the first quarter this year were reported as 100 per cent greater than for the same season in 1925.

C.I.T. Offices Moved

NEW YORK, April 6—Offices of Commercial Investment Trust will be moved from 41 East 42nd Street to 1 Park Avenue on April 15, the new offices providing more commodious quarters made necessary by business expansion.

1925 EXPORT TOTAL 30,000 UNITS HIGH

WASHINGTON, April 7—The Automotive Division, Bureau of Foreign and Domestic Commerce, has discovered that figures for foreign assemblies given in reports of the division have included some cars also given as complete-car exports. It is estimated that this duplication added approximately 30,000 units to the 1925 export total, which therefore should be about 527,425 cars and trucks rather than 557,425.

The division is planning means of permanently eliminating this source of error.

Budd to Operate German Body Plant

PHILADELPHIA, April 8—The Edward G. Budd Manufacturing Co., through formation of the Ambi-Budd Presswerke, G. M. B. H., of Berlin, will direct the manufacture of automobile bodies in Germany on a large scale. Construction of plants at a cost of about 5,000,000 marks will be the first step to be taken by the new company, Budd officials being now in Germany to direct the work.

The new company has a paid-up capital of 7,500,000 marks, or about $1,785,000 of which the American interests have taken $874,000, the remainder having been subscribed by the Ambi Co. of Berlin. It is planned to produce bodies and accessories for the German and nearby markets, and it is unlikely that any of the products will be shipped to the United States. Edward G. Budd, president of the company bearing his name, is a member of the board of directors of the German concern, other Americans on the board being Hugh L. Adams, Paul Pleiss and Vander Velde.

Lefebvre Named to Head G.M.C. Canadian Interests

DETROIT, April 7—Gordon Lefebvre has been appointed general manager of General Motors of Canada, Ltd., succeeding K. T. Keller, who resigned to become affiliated with Chrysler Corporation. In assuming the new position Mr. Lefebvre said conditions in Canada were unusually good and all Canadian plants of General Motors are at capacity and looking forward to favorable conditions for the balance of the year.

Black M. A. M. A. Director

NEW YORK, April 3.—H. L. Horning of the Waukesha Motor Co., president of the Motor and Accessory Manufacturers Association, has announced the appointment of S. Duncan Black, president Black & Decker Mfg. Co., Baltimore, to the association's board of directors, to take the place of R. W. Procter, of the same company, who resigned.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

NEW YORK, April 8—Both stock and commodity prices displayed increased firmness last week. Industrial activity continued at a high level, while trade, especially at retail, was hampered by bad weather. An increasing tendency toward the restriction of forward buying has been observed in recent weeks.

Sales of two leading mail-order houses last month were materially larger than a year ago, gains amounting to 11 and 14 per cent, respectively.

CAR LOADINGS

Loadings of revenue freight continued to exceed the totals of a year ago during the week ended March 20, numbering 977,209 cars, which compares with 967,411 in the preceding week and 911,481 in the corresponding period last year.

PETROLEUM OUTPUT

A slight gain in the output of crude petroleum occurred during the week ended March 27. Production averaged 1,933,800 barrels a day, comparing with a daily average of 1,928,950 barrels in the preceding week.

Borrowings of members of the New York Stock Exchange from local banks declined by $535,494,154 during March. Loans outstanding at the end of the month amounted to $3,000,096,167, as against $3,535,590,321 a month earlier.

BANK DEBITS

Bank debits reported to the Federal Reserve Board for the week ended March 31 were 8.3 per cent larger than the total for the preceding week and 15.7 per cent above a year earlier.

FISHER'S INDEX

Fisher's index of wholesale commodity prices stood at 151.8 last week, as against 151.7 a week earlier and 154 four weeks earlier.

FEDERAL RESERVE STATEMENT

Bills and securities held by the Federal Reserve banks increased $35,700,000 during the week ended March 31, with gains of $14,800,000 in discounts and $21,600,000 in Government securities, and a decrease of $2,600,000 in open market purchases. Note circulation declined $2,500,000 and reserves $29,900,000, while deposits increased $9,700,000. The reserve ratio declined from 74.3 to 73.4 per cent.

Loans of reporting member banks increased $3,000,000 during the week ended March 24, while investments declined $124,000,000. Borrowings from Federal Reserve banks rose $126,000,000, while net demand deposits decreased $273,000,000.

MONEY

A somewhat easier tone was evident in the money market last week, although there was little quotable change in rates. Call loans ranged from 4 to 5½ per cent, as against 4¼ to 5½ per cent a week earlier. Time loans and commercial paper remained at 4½ to 4⅝ per cent and 4¼ to 4½ per cent, respectively.

Overland Best Year Shows $11,422,777 Net

Car Sales Total 214,460 as Against 162,988—New Model Costs Deducted

TOLEDO, April 5—The Willys-Overland company with a volume of business amounting to $180,000,000 and a net income of $16,936,185 experienced the best year in its history in 1925, according to the report of President John N. Willys, issued today.

The company sold 214,460 cars as compared with 162,988 in 1924 which furnishes the largest volume of sales in dollars and in units, both domestic and foreign, on record.

From the net income the company has charged off $3,773,408 representing all previously deferred and current charges incurred in the development of new models, instead of leaving any part of it to be charged off in 1926.

This left net profit of $11,422,777 after all charges including Federal taxes, or the equivalent of $4.36 a share on common stock after preferred dividends. The financial achievements of 1925 also made it possible to pay up obligations on preferred stock of $29.75 a share accrued back dividends. Directors early this year also voted to purchase 39,238 shares of preferred to make up accrued sinking fund obligations. In addition to the regular $1,000,000 of 6½ per cent bonds retired July 1, the company purchased an additional $525,000 leaving $7,475,000 outstanding at the close of the year. The company did not require bank credit despite its big volume of business.

The balance sheet shows cash of $725,962 and time certificates of deposit of $7,010,000 inventory $27,300,995, total current assets of $42,014,850. Permanent assets less depreciation amounted to $27,510,534. Good-will and patents are carried at one dollar. Deferred assets $1,050,666 and other assets of $4,500,155 bring total assets to $75,076,207.

Surplus Totals $25,819,582

Current liabilities are $4,934,950; bonds $7,475,000, stock purchase contract $609,960, reserves $2,863,038, preferred stock $22,049,500, common $11,323,305, and surplus balance $25,819,582. The surplus stood at $15,972,789 at the beginning of the year.

Gross profits were $25,573,648 with selling and general expense of $9,637,462. Federal taxes were estimated at $1,740,000. Preferred dividends paid during the year amounted to $1,543,465.

The company has been carrying on a large building program during the winter months and was contingently liable on about $730,566 in uncompleted construction accounts. Producing capacity is now about 1500 cars a day.

"In many respects the year was the best in the experience of the company," declared President Willys. "The outlook is very encouraging and while competition will probably be keener than in 1925, the company never has been better fortified from a producing, distributing and financial standpoint."

The annual meeting is to be held May 11.

Argyll Engine Stirs Car Maker Interest

DETROIT, April 2.—Directors of Continental Motors Corp., have declared regular quarterly dividends at the rate of 80 cents a share per annum, payable April 30 to stockholders of record April 15. With this dividend the company will have paid $704,838 to stockholders since January 1.

W. R. Angell, executive vice-president, reported keen interest being shown by automobile manufacturers in the Argyll single-sleeve engine, patents of which the company recently acquired. He said that several automobile companies which have been building their own engines are now displaying an intensive interest in the Argyll single-sleeve type.

Believe Ford Buying Rhode Island Plant Site

BRISTOL, R. I., April 3.—A large amount of property on the west shore of Papoosesquaw Point, including 2000 feet of waterfront paralleling the 30-ft. ship channel, has been deeded to Elmer R. Beeler of Boston. It is understood here that Mr. Beeler represents Henry Ford. According to information regarded as authoritative here, Mr. Ford intends to build a plant for the assembling of cars here for the foreign trade. Between 400 and 500 would be employed. A spur track would be run to the plant if necessary. Engineers have already staked out the property and work on the wharf is expected to start shortly. That would allow shipments by water in Mr. Ford's steamers. Dutie Wilcox Flint, Rhode Island distributor for Ford, says the deal has nothing to do with his distribution.

Paige Shipments High

DETROIT, April 2—Shipments of Paige cars in March totaled 3200, an increase of 2670 as compared to March, 1925. In the first three months 6274 cars were shipped, an increase of 5081 over the same period last year. Paige shipments in the past two months have exceeded the total for all 1925. Jewett shipments in the first quarter totaled 7618.

Weirton Adds Mill

WEIRTON, W. VA., April 2—Weirton Steel Corp. will begin construction this month of a new strip mill costing $5,000,000, for the manufacture of materials for automobile bodies.

The new mill will be in addition to improvements begun by the company last fall, involving an expenditure of $15,000,000.

$146,028,940 Tax Paid for 1925 Gasoline

Sale of 6,457,783,284 Gallons Indicated With Average Payment of $9.52 per Operator

WASHINGTON, April 8—A total of $146,028,940 in gasoline taxes was collected from the motor vehicle operators during 1925, according to figures compiled by the U. S. Department of Agriculture. The amount collected represents an increase over 1924 of 83 per cent and was four and a half times the tax collected in 1923.

Of the total tax collected, $102,065,216 was made available for State highways, $32,721,704 for county and local roads, $217,393 for collection costs and $11,024,627 for other purposes. Four states, Illinois, Massachusetts, New Jersey and New York have no gasoline tax.

The tax represents the revenue derived from the sale of 6,457,783,284 gallons of gasoline, the average rate of taxation being 2.26 cents per gallon. The average consumption per vehicle was about 430 gallons. In the 44 states in which the tax was levied, the average amount paid by the motor vehicle operator was $9.52.

Loeffelholz Foundry to Double Capacity

MILWAUKEE, April 5—The Loeffelholz Co., Milwaukee, one of the largest brass foundry concerns in the Middle West, and an important element in the automotive industries' material supply, has made public plans for the complete replacement of its works on a scale fully 100 per cent larger than the original plant. This is to be accomplished without the slightest interruption of production, which for fully six months forward is completely occupied by contract work.

The first unit of the new plant, 50 x 140 ft., 30 ft. high, will be erected at once on the Oregon Street frontage not now occupied. It will cost between $75,000 and $90,000 with equipment. Upon its completion, the present main building will be razed and the new unit extended on an equal scale. In succession all present structures will make way for new and modern buildings. The site is 140 x 150 ft. George B. Miller is general manager of the company.

To Make Ford Locks

LA CROSSE, WIS., April 5—Transmission and other safety locks and devices, body hardware and other metal parts and equipment will be manufactured by the Ford Lock Co. of La Crosse, Wis., a new Wisconsin corporation founded by Edward Kirchner, Leslie A. Hill and Chester R. Pieper. The concern intends to specialize in equipment for Ford cars at the beginning, but later will branch out into more diversified lines. Factory space has been acquired and equipment is being purchased.

G. M. C. Closed Cars Reach 82 Per cent

Gain of 28 Per Cent Shown Over February, 1925, Output —All Lines in Comparison

NEW YORK, April 5—In February 82 per cent of all cars sold by General Motors divisions were closed models, compared with 84 per cent in January this year and 54 per cent in February last year. The percentages by months for the past four years follows:

	1926	1925	1924	1923	1922
Jan.	84%	47%	42%	34%	29%
Feb.	82	54	38	35	29
Mar.		60	38	36	25
Apr.		61	42	40	22
May		59	41	38	19
June		58	37	35	26
July		54	37	31	26
Aug.		62	40	30	31
Sept.		66	42	35	37
Oct.		71	52	38	24
Nov.		73	71	42	30
Dec.		77	67	44	39
Percentage for the year		63%	43%	37%	28%

This comparison includes Chevrolet, Pontiac, Oldsmobile, Oakland, Buick and Cadillac.

De Luxe Sedan Added to Cleveland 31 Line

CLEVELAND, April 7—A de luxe sedan model finished in two-tone gray with broadcloth upholstery to match has been added to the Series 31 line by the Cleveland Automobile Co.

Regular equipment on this model includes one-piece windshield, walnut door panels with Circassian inlay, walnut garnish moldings, vanity case, dome light, robe rail, foot rest, cowl lamps, automatic windshield cleaner, rear view mirror, sun visor, double bar front bumper and rear bumperettes, nickeled radiator shell, Moto-Meter and bar cap, extra tire and cover.

Stutz Tops 1000

INDIANAPOLIS, April 5—The Stutz Motor Car Co. of America, Inc., produced its one-thousandth new Stutz over the Eastertide. "We are feeling very happy," was the comment of F. E. Moskovics, president. "The industry appreciates its significance as a distinct accomplishment."

Peerless Triples 1925

CLEVELAND, April 5—According to Edward VerLinden, president of the Peerless Motor Car Co., the Peerless sales increase for the first quarter this year is nearly 300 per cent over the same quarter last year.

Buick Sets New Mark

NEW YORK, April 3.—The New York branch of the Buick Motor Co. delivered 3,187 new Buicks in March. This is a new high record for this branch. The largest previous delivery month was April, 1923, when 3064 cars were delivered.

CHEVROLET REACHES NEW MONTHLY HIGH

DETROIT, April 5—Chevrolet Motor Co. produced 65,041 automobiles during March, it was announced today. This exceeds all previous monthly records for the company. The company also predicts a new output record for April.

The March production was 23,658 more than for March, 1925, when the output was 41,383. The March schedule originally called for 57,500. This was increased several times until the new high mark was reached.

Hupp Output Sets New Season Marks

DETROIT, April 5—Hupp Motor Car Corp. shipped 4732 cars in March against 4042 in February this year and 3733 in March last year. Last month was the record production month for this company. More than 5000 cars were shipped in March, 1923, but many of these were made up and shipped out of stock. The 4732 shipped last month represented actual production during the month. Dealers now have one month's supply on hand. First quarter production was 13,117 cars against 8846 in the same quarter last year.

Diana Prices Revised

ST. LOUIS, April 2—Moon Motor Co. has announced the following revised price schedule on the Diana straight eight:

	Old Price	New Price
5-pass. roadster	$1695	$1795
5-pass. cabriolet roadster	1995	2095
5-pass. two-door, de luxe brougham	1795	1995
5-pass. four-door, de luxe sedan	1995	2195
7-pass. sedan	2695	2695
7-pass. berline sedan	2895	2895
Chassis	1595	1695

Jordan Sedan Reduced

CLEVELAND, April 5—The price of the seven passenger sedan of the Jordan Motor Car Co., Inc., great line eight has been reduced $250 effective today. The price reduction is made possible by increased production and manufacturing economies developed through the introduction of the light eight series, E. S. Jordan, president, said. The new price is $2675.

Toledo Adds Workers

TOLEDO, April 5—Employment in Toledo automotive plants has been increasing for the last two weeks. A net gain of 728 workers was shown during the last week in 51 plants reporting weekly. There are now 27,299 workers in those plants compared with 27,402 at the same time a year ago.

Applicants for work here showed a decrease and placements in plants an increase in the last week.

Nash-Ajax Shipments Set New High Mark

Heavy Domestic and Foreign Demand Contribute to Creation of New Totals

KENOSHA, April 5—Nash and Ajax shipments in March were 16,265, exceeding February, the previous high month, by 14.9 per cent, according to E. H. McCarty, general sales manager of the Nash Motors Co. Domestic sales also made a new monthly record and export business attained its largest monthly volume.

Incidentally, it was the biggest Nash month and the largest Ajax month. Nash shipments exceeded those in March, 1925, by 59.2 per cent, while combined Nash-Ajax shipments were 108 per cent higher.

In the first quarter of 1926 Nash-Ajax sales and shipments more than doubled the total in the corresponding period last year. Shipments were 41,794, comparing with 20,369 Nash cars. Excluding Ajax from the total this year—as this model was not in production a year ago—the Nash total for the first quarter of 1926 was 31,924, an increase of 56 per cent over the first quarter in 1925.

North East Electric Adds Plant Facilities

ROCHESTER, April 8.—Floor space of the North East Electric Co., has been increased to over 600,000 sq. ft., made necessary because of business expension. The erection of a six-story addition to the Lyell Ave. property added 80,000 sq. ft. Leasing of a five-story building, to be known as Plant No. 4, added 60,000 sq. ft. The company now employs 3,000 persons.

Eastern Outlook Good

AUBURN, IND., April 3—Outlook for automobile business in New England and in New York and Pennsylvania is declared very favorable by R. H. Faulkner, vice-president of Auburn Automobile Co., who has just returned from a trip through this territory. Stocks of cars in some centers are not regarded as excessive by Mr. Faulkner in view of the excellent prospect for business as the season gets into full swing. With respect to the Auburn line specifically, Mr. Faulkner declares dealer stocks low and in some cases insufficient to meet deliveries on sales now on the books.

Transue to Add Plant

ALLIANCE, OHIO, April 2.—To permit increased production a new addition will be erected at the plant of the Transue-Williams Co. here, makers of automotive forgings. F. E. Dussel, president of the company reported the present factory is not adequate to take care of the business and that extension is necessary.

Men of the Industry and What They Are Doing

L. F. Murphy is Named Velie Sales Manager

L. F. Murphy, who has been assistant sales manager at the Velie Motors Corporation, under C. W. Hadden, has been advanced to succeed Mr. Hadden, who this week retired from the automotive field. Mr. Murphy will maintain headquarters in the Moline factory and will be closely associated with E. E. McEwen, general manager of the company. Mr. Murphy came here recently and has been prominently identified with the automotive industry in the last ten years. He was with Ford Motor Co., assisting in the Fordson development, two years with the General Motors Export Corp., and recently with Studebaker, first as special sales representative and then as manager of the Indianapolis branch.

F. E. Moskovics in Buffalo

Fred E. Moskovics, president of Stutz Motor Car Co. of America, Inc., addressed a membership luncheon of the Buffalo Chamber of Commerce this week. In his talk Mr. Moskovics discussed the position of the motor car in the economic life of the United States. Men in the industry, he said, were constantly seeking to produce better, more comfortable and lower priced transportation.

Williams Visits Coast

G. M. Williams, president of Marmon Motor Car Co., is on an extended trip through the west where he will confer with Marmon dealers and business executives. His route will take him to Los Angeles, San Francisco, Portland, Seattle, Spokane, Billings, Mont., Denver and Chicago. This is Mr. Williams' second visit to the Pacific Coast territory since assuming the Marmon presidency.

Warfield with Collins

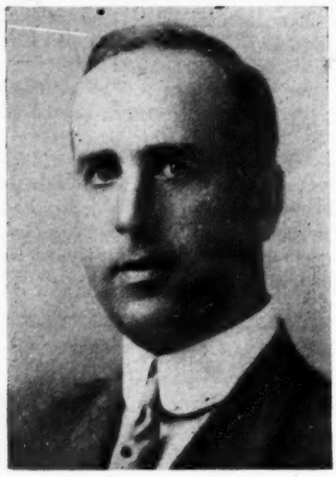
E. E. "Dave" Warfield has returned to the jobbing business as general sales manager of the George Collins Co., Boston. Mr. Warfield has been connected with the industry since 1908. For three years he was in charge of sales for Wetmore-Savage Automotive Equipment Co., and four years was vice-president in charge of sales of the Gill Mfg. Co., Chicago. For three years Mr. Warfield was first vice-president of the Automotive Manufacturers Association.

R. K. Mitchell Promoted

R. K. Mitchell has been appointed production superintendent in the automobile division of Marmon Motor Car Co., and J. W. Anderson has been made mechanical superintendent.

Gilcher with Van Wheel

Harry A. Gilcher, formerly with the Clark Equipment Co., has been appointed assistant manager at Oneida, N. Y., for the Van Wheel Corp.



P. W. Litchfield

The new president of the Goodyear Tire & Rubber Co., elected at the stockholders' meeting last week

A. T. Gardiner Resigns

A. T. Gardiner has resigned as general manager of the American Swiss Magneto Co., Toledo, and has not made any announcement as to his plans.

J. A. Kennedy Returns

J. A. Kennedy, factory representative of the Pacific Rim Tool Co., Cleveland, has just returned from Europe where he placed sales agencies. During the coming radio show in Pittsburgh, he will give a radio talk on his experiences.

GLANCY IS HONORED BY INDIAN NATION

A. R. Glancy, "chief" of the Oakland Motor Car Co., now also boasts the appelation of chief of the Algonquin Indian nation.

On a recent visit to the Pacific Coast to study business conditions, Mr. Glancy was invited to become a chief of this nation in appreciation of his naming the Pontiac car after the great Chief Pontiac of the the Algonquins and silhouetting the old warrior in the name-plate of the car.

In accepting Mr. Glancy became the second white man to be so honored.

The tribal ceremony which included all the solemn ritual used for centuries, was held in the seclusion of Monrovia canyon, the only participants being the new white chief and eleven red men, several of whom travelled many moons to take part.

In token of his new distinction Mr. Glancy now has a selection of Indian gifts presented at the ceremony.

Mrs. Glancy also was honored by designation as a princess of the nation and given a number of symbolic presents.

Intercontinental Rubber Elects New Directors

Stockholders of the Intercontinental Rubber Co. of America have elected these directors: Henry A. Bingham, vice-president Registrar & Transfer Co.; George H. Carnahan, president; Charles A. Corliss, president Lamont, Corliss & Corliss Co.; Charles Hayden, Hayden, Stone & Co.; John R. Morron, president Atlas Portland Cement Co.; Grayson M-P Murphy, G. M-P Murphy Co.; Frederick Osborn, director Farmers Loan & Trust Co.; Elton Parks, Dominick & Dominick; William C. Potter, president Guaranty Trust Co.; Felix T. Rosen, financier; Charles H. Sabin, chairman Guaranty Trust Co.; and Herbert H. Vreeland, chairman Royal Typewriter Co.

The board has now been increased from seven to twelve. The new directors are: Henry A. Bingham, Charles A. Corliss, Charles Hayden, Grayson M-P Murphy and Frederick Osborn.

Claude H. Munn Sails

Claude H. Munn, special representative of Dodge Brothers, Inc., in Latin America, sailed on the Grace liner Santa Teresa for the west coast of South America, accompanied by Mrs. Munn and their child. He said Dodge Brothers shipments to South America so far this year were nearly three times the total for the same period last year and that the company hoped to turn over the 1925 sales four times in South America. He added that with road construction in Venezuela, Peru, Chile and Bolivia opportunities for automobile sales were excellent. He will visit all South and Central American countries.

Call Joins Rollway

C. A. Call has been appointed sales manager of Rollway Bearing Co., Inc., Syracuse, coming there from Gurney Ball Bearing Co. where he was assistant sales manager. E. J. Lybert, formerly representing Rollway in Philadelphia, has been given charge of the Detroit district; J. D. Firmin, formerly associated with the engineering department of Niles-Bement-Pond, has been appointed Philadelphia representative and W. E. Smith has been transferred from the home office to the Youngstown district as assistant representative.

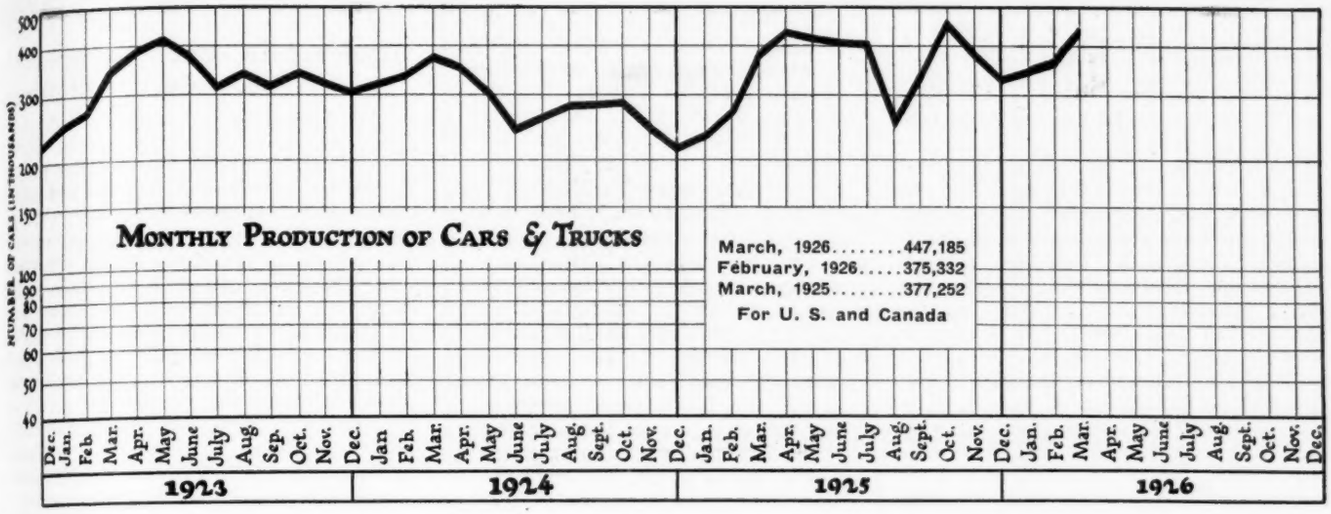
Hammesfahr Resigns

Werner S. Hammesfahr has resigned from the firm of Henderson, Helm & Hammesfahr, Inc., 44 Beaver Street. The business is continued at the same address under the name of Henderson, Helm & Co., Inc. F. R. Henderson was the chief figure in the organization of the Rubber Exchange of America, Inc.

Gunther With Auburn

E. H. Gunther has assumed charge of sales promotion for the Auburn Automobile Co.

March Production Close to Peak Total



April Steel Sales on Par With March

Buying Develops More Cheerful Feeling — Competition Keen But Prices Are Firm

NEW YORK, April 8—Automotive demand appears to have become a varying factor in the steel market, some passenger motor car builders figuring quite prominently as buyers while others are placing none or very light orders. The fact that an independent West Virginia steel producer plans early construction of a $5,000,000 strip mill for the manufacture of automobile body stock proves that the steel industry is absolutely sold on steadily growing demand from automotive manufacturers.

Somewhat broader steel demand from parts-makers reflects the better feeling in that quarter as the result of certain motor car manufacturers showing greater willingness to anticipate their summer and autumn requirements. Many steel company sales managers are beginning to realize that they have been borrowing trouble unnecessarily in March. They were impressed, of course, by the rapid forward strides that have been made in obtaining greater production from each and every plant unit, and worried lest a possible reaction in the demand might make it all the more difficult to find the quota of specifications necessary to maintain the March rate of operations.

So far, April has proved as good a month for new business as was March, and a much more cheerful tone prevails, although competition has never been more keen. In the scramble for business there is, however, relatively little price-shading. If there has been any change in the market's tone this week, it has been toward firmer adherence to prevailing market quotations, especially so in sheets. Full-finished automobile sheets may be said to rule strong at $4.40, Pittsburgh base.

A few transactions in sheet-bars are reported to have been closed on a $36, Pittsburgh, basis. Cold-finished steel bars are steady at previously quoted prices.

Pig Iron—The pig iron market continues quiet, but prices are well maintained on the $20.50, valley, basis for No. 2 foundry. Slightly better buying by midwest automotive foundries is noted.

Aluminum—An independent roller of aluminum sheets recently made his debut, and while production of virgin ingots continues to be a one-corporation affair, the secondary manufacturing operations in the aluminum products field are apparently coming in for wider competition. The market shows no change. Imports continue along routine proportions. Demand for remelted metal from parts makers is excellent.

Copper—Domestic demand is fairly well maintained, but prices are held in check by bear manueuvers at London. The leading brass producer shipped during the year's first quarter 12½ per cent more material than in the corresponding period of last year, and orders on its books on April 1 exceeded those of April 1, 1925, by 13 per cent.

Tin—Seesawing from day to day, tin prices have on the whole shown no tendency so far to become more reasonable.

Rickenbacker to Build One Super-Sport Daily

DETROIT, April 8—Production has been started by Rickenbacker Motor Co. on its super-sport streamlined sedan which was shown first at the 1926 New York show. The first of these models are now coming through and in a short time the production rate will be increased to one a day. Though the chassis is basically the same as the standard eight model a number of modifications are necessary and delay in receiving certain special parts has held up manufacture of the new model.

Woodward is Named Autocar President

New Executive Will Complete Plans for Refinancing—Ludlum and Fitts Resign

PHILADELPHIA, April 7—In a change in management made to align all interests with plans for refinancing, L. L. Woodward has been named president of the Autocar Company, Ardmore, succeeding David S. Ludlum resigned. The resignation of E. A. Fitts as vice-president of the company has also been accepted but no successor has been named.

The new president is a resident of Trenton, N. J., where he is president of Fitz Gibbon & Crisp, Inc., manufacturers of commercial bodies.

Ludlum-Fitts Letter

PHILADELPHIA, April 5—In connection with the change in management of the Autocar Co., a letter addressed to stockholders and business connections by David S. Ludlum and E. A. Fitts, jointly, is reproduced in part, as follows:

At a special meeting of the Autocar Co. held yesterday afternoon (April 3) the stockholders' committee that had been appointed in connection with the recent proposed refinancing reported that the plan could not be put into effect.

At this same meeting a majority of the board voted for the immediate retirement of the undersigned as president and vice-president respectively.

Mr. L. L. Woodward was thereupon elected to the presidency of the Autocar Co. Coincident with the election of Mr. Woodward there was made available for the company's use $250,000 of new money through the sale of 8 per cent preferred stock.

We do not like to let the occasion pass without expression of our appreciation of the many warm friendships and associations formed during all these years of our connection with the Autocar Co. and also hope that your continued cooperation for its best interests may prevail. (Signed) David S. Ludlum. E. A. Fitts.

Columbus Tire Set to Resume Operation

New Directors Named and Refinancing Arranged —Will Make Casings and Tubes

COLUMBUS, OHIO, April 3—The reorganization of the Columbus Tire & Rubber Co. was completed at a stockholders' meeting held at the company's offices March 29. At that time a new board of directors, consisting of John W. Zuber, Columbus; L. A. Mark, Washington Court House, Ohio; Veit Koerner, Hilliards, Ohio; W. S. Meighen, Steubenville; C. Hautzenroader, Mansfield; W. H. Herman, Lancaster; A. Simon, Columbus; R. M. Randolph, New Lexington, and Harry A. Neff, Bellaire, was named. The board will meet in a few days to elect officers and complete the reorganization by complying with the requirements of the secretary of state in filing the necessary documents.

W. H. Herman, president of the Herman Tire Building Machine Co., of Lancaster, will be general manager and will have active charge of the operation of the plant.

The plan of the reorganization calls for the issuance of $150,000 of first preferred stock which will be used to retire outstanding bonds of that amount. There will be 2000 shares of no par value common stock to be used to take care of the old issues of both common and preferred stock which amounted to $500,000 preferred and $440,000 common stock. Indications point to no handicaps in carrying the plan to a successful conclusion.

The plant, which has been idle since last October will be placed in operation in a few weeks. A number of minor repairs to the machinery will be made, but since the plant is well equipped no new machinery will be bought at this time with the possible exception of some molding equipment. Both balloon and high pressure casings will be produced as well as tubes. The sales plan is to be worked out by the board of directors.

New Hartville Company to Take Over Monarch

CANTON, OHIO, April 3.—The Hartville-Monarch Rubber Co. of Hartville has been formed here to take over the affairs of the defunct Monarch Rubber Co., which for more than two years has been operating under receivership.

Active in the new concern are H. B. Fawcett, W. Paul Wagner, P. M. Seymour, H. S. Armstrong and A. M. McCarty. The new company has been capitalized at $150,000. It is planned to increase production immediately officials of the new company said. Daily production now is in excess of 350 tires.

Make Battery Boxes

SPRINGFIELD, OHIO, April 5—Production of rubber battery boxes has been started by the Victor Rubber Products Co., H. H. Durr, general manager, reports. The company is now making rubber mats for cars, radiator hose and rubber battery boxes. Other lines are to be soon added.

The men identified with the Victor Rubber Products Co. purchased the Victor Rubber Tire Co. last fall and changed the name, discontinuing the manufacturing of Victor tires.

KEEP 'EM ON FARM? MORE CARS NEEDED

WASHINGTON, April 8—A substantial decrease in the farm population of the country is revealed in the farm census figures just announced by the U. S. Department of Agriculture. The figures show that on Jan. 1 this year there were 30,655,000, compared with 31,134,000 on the farms Jan. 1, 1925, or a decrease of 1.5 per cent.

The exodus to the cities is not viewed with any particular alarm by the government officials. However, in response to the recent popular refrain of "How are we going to keep 'em down on the farm," the Department suggests: "Better living conditions, better roads, tractors, more automobiles, movies, schools, and modern home conveniences, such as are enjoyed by city dwellers."

Crucible Steel Plant Will Double Capacity

MILWAUKEE, April 5—A capacity of more than 400 tons a month will be available to the Crucible Steel Casting Co. by May 15, when its new plant at Fifteenth Avenue and the Chicago & Northwestern main line is to be ready. During the construction work, which is proceeding on an entirely new site, the present plant is being operated night and day, principally on orders from the automotive and agricultural implement industries. The new works will represent fully 100 per cent greater capacity, and an investment of $450,000. Two electric furnaces and complete electric annealing equipment will be installed. Albert C. Lange is president and general manager.

United Alloy Sales Up

CANTON, OHIO, April 3 — Sales of the United Alloy Steel Corp., large makers of automotive steel, for 1925, were $10,000,000 greater than in 1924, Edward A. Langenbach, chairman of the board, said in his annual report this this week.

"This resulted in a record year for the corporation in production, sales and shipments," Mr. Langenbach said. "Manufacturing and distributing costs were lowered by reason of the larger volume of business. Sales and earnings for the months of January and February, 1926, are greater than for the same months of 1925 and I look for a normal steady volume of business for the remainder of the year," he declared.

High Manufacturing Cuts Rumely Profit

Showing in 1926 to be Improved—Demand for Tractors Best Since 1920

LA PORTE, IND., April 2—Net profit of the Advance-Rumely Co. for the year ended Dec. 31, 1925, was $540,577.22. Operations for the year resulted in an increase in sales volume of 51 per cent over 1924, the net profit on this business being regarded as small but anticipated as such under company's plans at the beginning of the year. Of the total business during the year 55 per cent was in oil-pull tractor sales. Production on this type was started in 1925, and manufacturing difficulties incident to a new product resulted in heavy costs which affected profits. These tractors are now being built at a cost which will show satisfactory profit, the company declares.

The consolidated balance sheet shows $16,104,429.05 in current assets and $6,307,125.09 in current liabilities. Current assets include inventories of $7,326,293, customers' notes of $7,551,804, and cash of $385,718. Current liabilities include notes payable of $5,100,000. Surplus as of Jan. 1 is $1,039,044 and total assets $35,419,634. Arrears in cumulative dividends on the 125,000 shares of preferred stock were $13.50 a share as of Dec. 31, 1925.

In a statement to stockholders, Finley P. Mount, president, said the increase in farm tractor purchases had exceeded that of any other line of farm tools during the year. More tractors were sold in 1925 than in any year since 1920 and more were being sold in the spring of 1926 than in the 1925 season. If the season of 1926 produces an average crop, business in the farm equipment industry will undoubtedly be good, he said.

Monarch Tractor Moves

SPRINGFIELD, ILL., April 3—Monarch Tractor Company, Inc., of Watertown, Wis., which is moving its plant here from its Wisconsin factory, will begin production in the Springfield factory late this month, officials said this week. Meanwhile production and assembly is going ahead in Watertown, while equipment and machinery are being transferred here, but as soon as possible manufacture will begin in its new quarters. Robert Gottshall, managing head, and M. B. Baker, vice-president, have stated that about 125 men will be employed in the local plant.

Metal Mold Capital

BUFFALO, April 3—Capitalization of Metal Mold Castings Co., Inc., which has taken over the Bronze Alumina Corp., will be 750 shares of preferred stock of $100 par and 10,000 shares of no par common.

Austin Drops Plan to Lower Capital

Stockholder Opposition Causes Abandonment—Will Consider Action Later

LONDON, March 23, (*by mail*)—It is announced to-day by the Austin Motor Co. Ltd., Birmingham, that in view of the evidence already forthcoming, in the form of opposing proxies received by the secretary of the company, that there is no possibility of carrying by the requisite three-fourths majority the resolution authorizing the proposed capital reorganization plan, the directors have decided to cancel the meetings of shareholders called for to-morrow and to drop the plan in view. The management, however, proposes immediately to invite representatives of the various classes of shareholders to confer with them with a view to evolving an agreed plan which will enable the company to show satisfactory earnings.

No capital loss was to have been suffered by the preference shareholders, but their rights were to have been considerably modified in respect to arrears of dividend, and it is mainly on the latter account, it is believed, that the opposition has been so pronounced as to cause the plan to be dropped.

New Finance Company is Formed in Germany

WASHINGTON, April 8—A new automobile financing company known as the Deutsche Automobilbank Act. Ges. with offices at Berlin SW 68, Kockstrasse, has been organized to handle the sales of both American and German cars, the Automotive Division of the Department of Commerce is advised.

Current rates quoted by the company for installment payments up to twelve months amount to 10 per cent a year. An insurance against insolvency of the purchaser is also issued by the company against a total fee of 2 per cent. This insurance covers a 100 per cent risk for the seller. The German government also has admitted this bank like a number of other prominent insurance companies, as underwriter for deferred payment of duty.

Sharp Increase Made in Rumanian Tariff

WASHINGTON, April 8—Important increases in the Rumanian import tariff were introduced under the provision of a royal decree effective April 1, according to a cablegram from Acting Commercial Attache Sproull Fouche at Bucharest, received here by the Department of Commerce.

The automobile duty rates were increased approximately 100 to 300 per cent, spare parts for automobiles approximately doubled, and motorcycles increased 300 per cent.

The new duties on automobiles follows, expressed in gold lei per 100 kilos: Automobiles weighing less than 1000 gross kilos, 27; weighing from 1000 to 1700 gross kilos, 40; weighing over 1700 gross kilos, 67.

By the same decree, one gold lei will be made equivalent, for customs purposes, to 30 paper lei, instead of 40 paper lei as at present.

Italy to be Represented in Schneider Cup Race

WASHINGTON, April 8—Prospective naval entries in the annual seaplane contest for the Jacques Schneider cup are Lt. George T. Cuddihy, naval air station, Anacostia; Lt. Ralph H. Ofstie, plans division, and Lt. F. H. Conant, flight division, bureau of aeronautics. Lieutenants Cuddihy and Ofstie were forced down in last fall's race, and Lieutenant Conant was an alternate.

The National Aeronautical Association announces that Italy and the U. S. Navy will be represented in the event at Hampton Roads, Va., the week of Oct. 24. The entrance of Italy precludes belief that if the United States entry were the sole competitor, it would obtain permanent possession of the trophy.

Standard Parts Group Adopts Practice Code

DETROIT, April 8.—A manual of standardized practice of merchandising, administration and business control has been adopted for publication by the Merchandising and Standardization Committee of the National Standard Parts Association, which met last week in Washington.

Robert Macfee, secretary of the committee and assistant manager of the association, who wrote the manual and designed an accompanying system of records, says the work "has been written and designed especially for the use of jobbers of replacement parts."

A. S. M. E. April Meetings

NEW YORK, April 5—Modern Diesel engine practice will be discussed by J. F. Clancy, sales manager of the Snow Holley Works of the Worthington Pump & Machinery Corp. at the meeting of the Buffalo section of the American Society of Mechanical Engineers on April 20.

At the Columbus, Ohio, meeting April 23, Professor C. A. Norman, foreign exchange editor of Automotive Abstracts, will discuss Swedish Oil Engine Development.

At the Washington, D. C., meeting April 22, William F. Jachim of the Langley Memorial Aeronautical Society will discuss research on Oil Injection Engines for Aircraft. William Taylor Thom, Jr., of the Geological Survey will read a paper on Researches in Petroleum Geology, while the subject covered by Julian D. Sears of the Geological Survey will be Petroleum Conservation.

The council of the society has appointed Ralph E. Flanders as its representative on the Anglo-American conference committee on international screw threads.

Keep Red Tail-Light Says N.A.C.C. Board

Cite Six Reasons Opposing Substitution of Yellow for Familiar Beam

NEW YORK, April 5—In support of the stand by automobile clubs in favor of the red tail-light on automobiles, and believing that the current practice in this regard is sound, the directors of the National Automobile Chamber of Commerce have gone on record as opposing the move in some quarters for yellow tail-lights.

This issue was endorsed at the recent convention of the American Automobile Association, when red as the proper color was overwhelmingly endorsed.

While various theories have been propounded in favor of yellow, automobile manufacturers feel that common usage and practicality are in favor of maintaining the present system. The reasons in detail for their stand are:

1. It is now in use on 20,000,000 vehicles.

2. The extent of such use creates a public tradition and familiarity to a much greater degree than any one lighting tradition that may obtain.

3. To change 48 state laws, and the habit of the motor traveling public in this particular is an unwarranted interference unless its value as a safety measure can be thoroughly demonstrated.

4. There is no extensive or exclusive data to indicate that the red tail-light is the cause of accidents.

5. Railroad officials have stated that motorists have run around red lights at crossing gates thinking that the light has indicated an automobile. This could be remedied by putting more lights on the crossing gates, and in any case the motorist who would cut around any light without seeing where he was going would probably not be affected by the matter of color.

6. Yellow light is regarded by many as confusing. With eyes trained to a red light as tail-light, the presence of the yellow light in that capacity gives the impression of a parking light or of some other signal which is confusing to the driver.

Maintain Kelly Name

SPRINGFIELD, OHIO, April 5—E. T. Herbig, sales manager of the Kelly-Springfield Truck & Bus, Inc., left Saturday for a trip to Boston and eastern points to meet branch managers and dealers of the Kelly truck. Mr. Herbig says that orders for the Kelly trucks are keeping up well.

Officers of the American Bus & Truck Co. at a meeting in New York recently voted to change the name to that of The Kelly-Springfield Truck & Bus, Inc. This decision was reached after a survey was made and realization that the Kelly truck has a splendid reputation for heavy duty so the name Kelly is retained.

Crude Rubber Price Continues Steady

March Arrivals Exceed Consumption—Tire Price Cut on Larger Sizes Expected

NEW YORK, April 6—Price fluctuations on the Rubber Exchange of New York, Inc., during the past week continued within a very narrow range, May closing yesterday at 58 cents and August at 57, with spot price at 59.

Rubber arrivals in March were about 36,500 tons and estimated consumption about 30,000 tons.

London stocks now are estimated by Henderson, Helm & Co., Inc., at 14,500 tons. The company adds that weather conditions throughout the territory where tire consumption is usually heaviest continued very bad the past week. Rumors persist that a 10 per cent cut in tire prices will soon be announced on large sizes after last week's cut of 10 per cent on Ford sizes.

Rubber Now Leading Import

Reports just released by the U. S. Department of Commerce indicate that rubber last year became the leading import. Rubber imports increased from 328,000 tons in 1924 to 396,000 tons in 1925, and from a value of $174,231,000 to $429,705,000 or an increase of 21 per cent in quantity against an increase of 146.6 in value.

This indicates that the average import value per pound increased from 23.7 cents in 1924 to 48.4 cents in 1925. Rubber represented 4.8 per cent of the value of the total imports in 1924 and increased to 10.2 per cent in 1925.

Program Announced for Highway Meeting

NEW YORK, April 8—The program of the 1926 annual meeting of the National Highway Traffic Association, which will be held April 30 at the Automobile Club of America here, shows the meeting divided into afternoon and evening sessions. The chairman of the afternoon session is David Beecroft, vice-president of the North Atlantic Division of the Association, and Arthur H. Blanchard, president, is chairman of the evening session.

Speakers at the afternoon session are R. H. Huffman, secretary of the motor vehicle conference committee of the National Automobile Chamber of Commerce; G. H. Pride, president of the Heavy Haulage Co., New York; Professor L. W. McIntyre, University of Pittsburgh; Harold M. Lewis, executive engineer of the regional plan of New York and its environs; P. L. Emerson, president of the Yellow Mfg. Sales Corp., Chicago, and Professor Blanchard.

Evening speakers are G. E. Hamlin, superintendent of repairs of Connecticut State Highway Dept., E. P. Goodrich, consulting engineer, New York; Col. I. C. Moller, assistant director and traffic engineer, Commissioners of the District of Columbia; David Beecroft; vice-president Chilton Class Journal Co., C. F. Keale, chief engineer, Airmap Corp. of America, New York, and D. C. Fenner, manager of public works department, International Motor Co., New York.

SET FORD CREDIT IN GERMAN MARKET

BERLIN, March 25 (*by mail*)—The Ford Credit Co. has been organized here with a paid-up capital of 2,000,000 reichs mark, for financing the Ford Motor Co.'s credit sales in Germany. The organizer of this new Ford enterprise is not the Detroit parent company, but the recently formed Berlin Ford Motor Co. jointly with representatives of the Danish Ford branch. The board of directors consists of Messrs. Heine, Posekel and Government Councillor Ueberall. Mr. Byrns (Berlin) is president. With this organization is ushered in the financing of German purchases of Ford cars.

February Deliveries 73 Per Cent of Output

CHICAGO, April 7—Retail sales by automobile dealers during February were 73.2 per cent of their receipts from factories, according to report received by the Chicago Federal Reserve Bank from car manufacturers producing 63.4 per cent of the total February output.

In January the percentage of retail sales was 73.3 against 88.3 per cent in December, and in February, 1925, was 87.2 per cent. Excluding August, 1925, percentage of sales to receipts reported last year ranged from a high of 108.7 in April to 78.6 in November.

Finance Earnings Off

PITTSBURGH, April 2—With the listing of 22,000 shares, par value $25, of 7 per cent cumulative preferred stock, and 10,500 shares, without par value, of common stock of the Automobile Finance Co. of this city, a financial statement was issued which showed the company last year paid $1 per share on the common, although in 1924 it paid $4 and in 1923 paid $2. The company discounts automobile paper only.

During 1925, a total of $4,130,134 leases were purchased, with gross income of $288,623, and net income after expenses and taxes, of $91,742, compared with $64,445 in 1924.

Award Mail Contract

WASHINGTON, April 8—The National Air Transport, Inc., of Chicago, was this week awarded the contract for carrying the mail from Chicago to Fort Worth and Dallas, via Moline, Illinois, St. Joseph and Kansas City, Missouri, and Oklahoma City. The contract calls for 80 per cent of the revenue derived. The route is 987 miles long.

Financial Notes

McCord Mfg. Co. An issue of $360,000 collateral trust 6 per cent serial gold notes, due $720,000 semi-annually Oct. 1, 1926 to Oct. 1, 1927, was offered March 31, 1926 at 100 and interest, the proceeds to be used to retire certain maturing obligations and for additional working capital. The notes are secured by pledge of 120,000 shares of McCord Radiator & Mfg. Co. class B stock. The latter company has outstanding 150,000 shares of stock of an authorized issue of 200,000 shares.

Martin-Parry Corp. net income for the quarter ended Feb. 28 and after taxes, was $50,416 or 40 cents a share on 125,000 shares of no par capital stock outstanding, and net income for the six months ended Feb. 28 was $169,413 or $1.35 a share. Net sales for the quarter were $1,043,898. Net profit for the preceding quarter was $118,997 or 95 cents a share and net sales were $1,308,366.

Commercial Credit Corp. in its comparative balance sheet as of Dec. 31, 1925 shows total assets of $23,018,111 as compared to $14,535,446 the year previous. Repossessed cars are listed at $39,400 as against $62,328. Cash is shown as $3,101,825 compared with $3,294,242, and notes and accounts receivable are $19,006,275 as against $10,968,347.

Goodyear Tire & Rubber Co.—Central Union Trust Co. as trustee has notified holders of Goodyear ten-year 8 per cent sinking fund debentures, due 1931, that $1,091,700 principal amount of the bonds of this issue has been drawn by lot for redemption on May 1 next at $1.10 and interest.

Intercontinental Rubber Co. reports for 1925 net profit $51,213 compared with deficit of $3,693, in 1924. Cash on hand Dec. 31, 1925, was $92,224 compared with $1,227 at the end of 1924, and surplus increased from $4,033,771 to $4,084,985.

Wildman Rubber Co. has changed its name to the Bay City Tire & Rubber Co. and present stockholders will provide the major portion of the $500,000 needed to complete and equip company plant. Each stockholder would subscribe for stock equal to 50 per cent of present holdings.

Lee Puncture Proof Tire Co. of Canada, Ltd. has offered at $12.50 a share 20,000 shares of its no par capital common stock out of an authorized capital of 200,000 shares. The plant of the company is at Lachine, Quebec.

Stewart-Warner Speedometer Corp. closed the first quarter of 1926 with net earnings estimated at approximately $1,800,000 after depreciation and taxes, which compares with $1,308,972 in the first quarter of 1925.

A. O. Smith Corp. directors have declared an extra dividend of 25 cents a share and the regular quarterly dividend of 25 cents a share on common stock payable May 15.

White Motor Co. has made application to the New York Stock Exchange to list its $15,000,000 additional capital stock, $50 par.

Eberhart Aeroplane & Motor Co., Inc. has filed incorporation in Delaware with a stated capital for taxation of $1,000,000.

Verville Begins Plane Production

DETROIT, April 5—Following highly successful test flights at Packard Field, production has commenced at the plant of the Buhl-Verville Aircraft Co. on the new "Verville-Airster" commercial airplanes. Among the purchasers of the first production planes to be turned out is Henry S. DuPont of the General Motors Research Corp. Instead of the regular equipment of a Curtiss OX-5 engine Mr. DuPont's plane will be powered with a 200 hp. Wright air-cooled engine which will give the three-seater biplane a speed of 130 m.p.h.

Six machines are under construction at the present time and these will be delivered to the purchasers by May 1. As soon as this batch is completed production will begin on a larger scale. Alfred A. Verville designer and vice-president of the company is one of the foremost airplane designers in the country, machines of his design having won the Pulitzer Race in 1920 and 1924.

Higher Gasoline Tax to Pay for Coast Roads

SAN FRANCISCO, April 7—An increase of the State gasoline tax to three cents a gallon from the present rate of two cents is to be sought by initiative petition on the November ballot in California by the California State Automobile Association. Directors of this association by unanimous vote decided to lead the movement which will raise $10,000,000 a year for twelve years to meet the $123,000,000 highway building program of the State.

This method will pay for highways as they are built and leave no burden of debt for the next generation. Though automobile dealer associations and trade organizations generally have taken no official steps, officials of these organizations say they approve the increased gasoline tax plan as it will stabilize highway construction.

Automobiles Second in Export Valuation

WASHINGTON, April 7—Ten commodities, the first of which is raw cotton and the second automobiles and parts, constituted half of the value of all exports according to an analysis of America's foreign trade made public by the Foreign Commerce Department of the Chamber of Commerce of the United States. The other eight commodities were gasoline and naptha, leaf tobacco, wheat, refined copper, lard, coal and coke, lubricating oil and flour. The value of cotton exports was $1,059,751,000, and automobile and parts value $303,106,000.

Radiator Cap Decree

CHICAGO, April 3—Under a consent decree entered in Federal Court here the rights of Kingsley-Miller Co. under patent No. 60878, covering radiator cap design are upheld, and the Splitdorf-Bethlehem Electrical Co., as successor to the Bethlehem Spark Plug Co., is restrained from infringement. The Kingsley-Miller product bears the trade name "Monogram."

Mexican Sales Tax Adds 10 Per Cent

WASHINGTON, April 8—A 10 per cent tax on first hand sales of automobiles and tires in Mexico was imposed on March 27, effective immediately, according to a cablegram received by the Automotive Division of the Department of Commerce from Commercial Attache Alexander V. Dye in Mexico City. This tax is in addition to the existing import duty of 10 per cent ad valorem on automobiles and of 2 pesos per gross kilo on tires, plus the usual surtaxes, which bring the rates of duty up to 11.2 per cent of the value and 2.24 pesos per gross kilo, respectively.

"Reduce Waste Line" Hubbs Tells Ad Men

MILWAUKEE, April 5—George C. Hubbs, general sales manager of Ajax Motors Co., Racine, Wis., was the guest of honor at the monthly luncheon meeting of the Milwaukee Advertising Club, and drove home some solid facts on his topic, "Reducing the Waste Line."

"Because one believes that such and such a paper is the proper medium does not make it so. Many men, old in the advertising business, are in a 'one-paper rut.' All their ads find their way to one medium. This is narrow and in direct opposition to progress. The good advertiser forgets absolutely his prejudices and looks for the uncolored facts which determine the importance and desirability of a medium for the most productive results."

Developments of the Week in Leading Motor Stocks

NEW YORK, April 8—The motor shares rallied during the past week in sympathy with a sharp rally in the rest of the stock market, as a result of short covering and substantial buying on scale down. There was a better tone to the motors as reports began to filter into the financial district showing that automobile sales were picking up with the opening of spring weather in various parts of the country. These reports indicated that the motor situation was very spotty and that while all companies were enjoying a large volume of business some were doing considerably better than others.

General Motors Corp. sales for the first three weeks in March were reported as running ahead of the corresponding period of 1925. Indications pointed to a new high record for the month in both production and retail sales with prospects that more than 100,000 General Motors cars would be placed in the hands of the public during the month. Such sales would be the second largest in the company's history and compare with a record of 105,000 cars sold in April, 1923, the previous banner month. As General Motors is doing approximately 25 per cent of the country's business the prosperous condition of this company was looked upon as a favorable sign that the automobile industry has not suffered as serious a set-back as the crumbling of motor share prices indicated. The stock recovered a large part of its loss during the March break, selling above 120 or within 10 points of its high price this year. Hudson Motors was reported as going back to the large output schedule early in March and that shipments in March had been 31,500 cars showing a gain of more than 50 per cent over shipments during the first quarter of its fiscal year.

Estimates of first quarter's earnings of the leading motor companies made their appearance in the week's financial news. In many cases they were above the earnings reported for the first quarter of 1925. Chrysler was said to have earned $4,000,000 against $3,500,000 in 1925. Studebaker's earnings were estimated at about the same level as in the first quarter of 1925 and Nash earnings were placed at upwards of $5,000,000 in comparison with $3,000,000 last year.

Packard Motor reported earnings for the first six months of its fiscal year of more than $8,000,000 against under $3,000,000 in 1925 a gain of 170 per cent.

Willys-Overland Co. issued its report for 1925 showing net profits of $4.36 a share on its common stock against 23 cents a share in 1924. The stock advanced about 2 points following the publication of the official figures which were considered favorable in view of the company's heavy charge-offs against earnings last year on account of development expense for its new models.

Brokers are still urging discrimination in purchasing the motor shares and the belief has not entirely disappeared that there may be further readjustment before some issues are again in line with the levels at which they sold before the motor boom began. It is pointed out that many stocks are still selling at levels justified only by abnormal earning power. Authorities are agreed that a moderate recession in volume will cut sharply into the profit of some companies and when this condition arises, intrinsic values of individual issues will again be a matter for consideration.

Rubber shares and accessory issues were comparatively inactive during the week and were without feature so far as price movements were concerned.—E. S.

Coast Dealers Told Long Term Dangers

Permanency and Prosperity of Trade Rests on Standard Financing, Hanch Says

LOS ANGELES, April 2.—Into the stronghold of low down-payments and long deferred maturities in automobile financing, C. C. Hanch, general manager of the National Association of Finance companies brought a warning to southern California distributors and dealers, at a meeting held in Los Angeles under the auspices of the Motor Car Dealers Association, that automobile selling on the instalment plan must be kept on a sound basis if the automotive business is to continue in a healthy condition.

Hanch vigorously assailed practices, which have been particularly in vogue on the Pacific coast, of "selling terms and not automobiles." He urged in the interest of permanency and prosperity of automobile dealers that they stick to the standard basis of financing, with one-third down and 12 equal monthly payments on new cars, and 40 per cent down and 12 equal payments on used cars. Eighteen months is now the almost universal financing period allowed by dealers in this section.

At the conclusion of Mr. Hanch's address, he was made the mark for a veritable battery of questions from the distributors and dealers present, who clearly showed that they had been aroused to the importance of saner financing policies. President Robert S. Breyer, of the association, considered the facts and figures given by Mr. Hanch of such importance that he ordered a copy of the address run off and sent to every member of the organization.

With repossessions now running high in most sections of the coast, following the particularly wild financing orgy last fall, Mr. Hanch's analysis of the effect of low down-payments and excessive terms on "come backs" proved particularly interesting to the gathering.

Goodyear of California Doubles 1924 Earnings

LOS ANGELES, April 3.—Completion of a highly successful year through substantial increases in net profits and surplus is reported in the annual statement of the Goodyear Tire & Rubber Co. of California. Net earnings in 1925, after all charges, amounted to $3,686,578, an increase of 92 per cent over 1924, and the equivalent of $46.11 a share on the outstanding preferred stock. This is comparable to earnings of $23.96 in 1924.

The company's surplus, which showed an increase of 133 per cent a year ago, continued to reflect the recovery from the difficulties of a few years ago, showing an additional increase of 121 per cent in 1925 over 1924. On Dec. 31 last surplus amounted to $4,691,588, as compared with $2,124,408 at the end of the preceding year. The progress of the company is suitably illustrated by the size of the surplus account at this time, compared with a deficit of $3,157,762 as of March 31, 1921. The company's indebtedness to the parent company, the Goodyear Tire & Rubber Co. of Akron, O., was reduced from $2,896,988 on Dec. 31, 1924, to $2,146,655 on Dec. 31 last.

Paige Makes Changes in Northwest Zone

SEATTLE, April 2.—Developments of special interest to the automobile business of Seattle and the Northwest in general and to Paige and Jewett in particular, were announced by Henry Krohn, vice-president in charge of sales of the Paige-Detroit Motor Car Co., who with a number of business associates visited Seattle.

These developments include the establishment here of three new officials, enlargements of the scope of the company in this district inaugurating a more intensive and extensive sales and service policy and a general reorganization of the personnel of the dealer representatives here.

The three newly appointed Northwest officials who were brought here from Detroit are S. B. Denzel, district service manager; John F. Mauro, sales manager who succeeds Newton Gresser, and J. A. MacDonald, warehouse manager in charge of the factory branch here. All will make their headquarters in Seattle, and Mr. Denzel and Mr. Mauro will travel the Northwest territory.

Moreland Truck Sales Near Total for 1925

LOS ANGELES, April 2—January and February orders booked by the Moreland Motor Truck Co. are within a few models of equalling the entire production of this factory in 1925, and additional orders this month indicate that 1926 will be a banner year for this concern.

The company is operating two shifts in several departments and three in one department. February was the biggest sales volume month in the past two years, according to Watt L. Moreland. A large percentage of this volume was secured through the introduction of the new light weight road-runner model designed to carry up to two-ton payloads, and the growing popularity of the Moreland six-wheel super trucks for ten-ton payloads.

No Small Rickenbacker

DETROIT, April 2—Addressing a convention of Rickenbacker distributors at the factory here, President B. F. Everitt of the Rickenbacker Motor Co. said there was no intention on the company's part to introduce a light, low priced Rickenbacker six. Mr. Everitt said he was making this statement in view of reports which had been circulated.

"Want Ads" Leaders in Used Car Sales

Los Angeles Survey Shows 75 Per Cent of Business Developed at Low Cost

LOS ANGELES, April 3.—More than 75 per cent of all used cars sold are moved as the direct result of contacts established with prospects through classified advertising, if the situation in Los Angeles can be accepted as typical, according to a survey made by Thomas J. Smith, of the Smith Engineering Co., specialists in automotive research and production engineers.

"Our survey shows that without the want-ad the automobile dealer would be almost helpless in moving his used cars," says Mr. Smith. "It is the only method of advertising used cars in which the cost can be kept within reasonable bounds. With want ads it costs an average of $5 per car to sell the low-priced machines. With the higher grade cars, the cost is approximately 2 per cent of the gross sales price.

"The automobile dealer can certainly thank his stars that someone, some time, invented the want-ad. Statistics show us that on 80 per cent of all cars sold for $1000 or less in Los Angeles, another car is traded in; that on cars selling from $1000 to $2000, 87 per cent of the sales call for the handling of the purchaser's old car—and after you reach the class above the $3000 mark the percentages of trade-ins on sales reached more than 97.5 per cent.

In addition, the average dealer must accept other cars as trade-ins on the used car which he has taken in on a new buy. In the $1000 or under price class 35 per cent of his sales of used cars involve the acceptance of another used car as part of the deal—and this percentage reaches as high as 80 per cent with cars bringing more than $3000. The case with one of Los Angeles's most prominent automobile dealers may be cited as typical For every 220 new cars this dealer sells he must also sell 314 used cars accepted in trade."

Larrabee-Deyo Expands

BINGHAMTON, N. Y., April 2—Officials of the Larrabee-Deyo Motor Truck Co., Inc., are planning the building of a new manufacturing plant as the result of the rapidly increasing business of the concern.

Expansion of the Larrabee-Deyo facilities was made almost certain by the contract which was recently drawn up with the Cabco Sales Corp., of New York. This contract involves an amount of approximately $2,000,000 and calls for an initial order of between 500 and 1000 taxicabs. Construction of the new is already under way. New equipment has been installed in the company's Hillcrest factory and considerable additional help is to be added in an effort to complete the order in required time.

Cobham Gives View of Long Air Lines

London to Capetown Pilot Sees Re-fueling Needs — Finds Air-Cooling Practicable

LONDON, March 24 (*by mail*)—Lecturing before the Royal Aeronautical Society last night, Alan Cobham, who last week concluded his surveying flight from London to Capetown and back for Imperial Airways, in a DH 50 four-seated machine with an air-cooled Siddeley Jaguar engine, said that world airplane services would have to be run with relays of machines and with much improved methods of re-fueling at intermediate stops, so as to cut down the ground-time to five minutes.

The machines, too, must be built to withstand exposure to all weathers when on the ground, like railroad coaches and automobiles. For high altitudes very much larger airplanes were needed, he said, with greatly increased horsepower, these being the solution of the problem of taking-off in rarified atmospheres, rather than the lessening of the load.

An outstanding lesson of his recent flight, Cobham said, was that the air-cooled engine was an entirely practical type under all conditions, even in the tropics. He had run the engine of his machine in temperatures of 118 deg. in the shade and 160 deg. or more in the sun without the slightest difficulty.

Another of Cobham's conclusions was that in large passenger carrying machines a navigator was essential over long routes, as the pilot could not both fly the machine and study maps and work out his course.

Sikorsky Seeks Site for New Plane Plant

SPRINGFIELD, MASS., April 2—Count Igor Sikorsky and other officers of the Sikorsky Mfg. Corp. of Long Island have been in conference with Chamber of Commerce officials relative to the possibility of removing its plant here in the event that this city shall establish a suitable landing field. It is stated that the company is not asking business men here to aid in financing the concern, but is insistent on an aviation field being provided as a condition to this city being selected as the location. The company's Long Island site is said to be inadequate for the purpose.

Harry C. Beaver, treasurer of Rolls-Royce of America, Inc., also is urging that such a field be provided here, and several business and civic organizations will endeavor to organize measures for the prompt fulfilment of this requirement. There are two fields quite near the city that would serve the purpose.

Hartford, which already has a flying field, is understood to be making a strong effort to have the Sikorsky plant established there.

PARIS FACTORY MEN GET MEETING PLACE

PARIS, March 24 (*by mail*)—The rooms of the American Chamber of Commerce in France, at 32 Taitbout, have been placed at the disposal of the American Automotive Club of Paris, composed of representatives of about 25 American automobile and tire manufacturing companies, for the holding of periodical meetings and to serve as a convenient central address pending later arrangements for permanent headquarters.

Hess Aircraft Starts Operations in Detroit

DETROIT, April 3.—Six new commercial airplanes are under construction at the factory of the Hess Aircraft Co., just established in this city, it is announced today by A. Hess, president and chief engineer. This makes the third commercial airplane manufacturer to go into production on a new type of private airplane here since Jan. 1, this year.

Deliveries of the first batch of six machines will be completed by the end of April and orders are on the company books for 33 planes to be built by June 1. The airplanes are of the conventional biplane form powered with Curtiss OX-5 of 90 hp. and capable of carrying three passengers in addition to the pilot.

Jupiter in Long Test

LONDON, March 21 (*by mail*)—A Bristol Jupiter radial air-cooled, airplane engine taken out of production has just completed an endurance test in actual flight, covering over 25,000 miles in slightly less than 226 hours of actual running time. The tests were made with all parts of the engine sealed officially, so that no replacements except those of spark-plugs could be made. The performance is highly interesting in comparison with that of automobile engines. The engine at the finish of the test was developing just as much power as at the beginning and was apparently in first class running order. On disassembly it was found that the only changes necessary in order to put the engine into first class running order were the replacement of one exhaust valve which had stretched slightly and one inner valve spring.

Plane Cabin Seats 50

NEW YORK, April 2—Alfred W. Lawson, of Lawson Aircraft Co., has patented a new double tier airplane cabin seating 50 passengers in the same space as the regular cabin seats 25. He has also brought out a new method of body construction affording greater strength.

In 1919 the first Lawson airliner, with seats for 18 passengers, was flown from Milwaukee to New York and Washington. Many European airliners have adopted the Lawson 1919 cabin type.

Europe to Continue Present Race Rules

Superchargers Set for Later Disbarment — DeKnyff Resigns French Board

PARIS, March 24 (*by mail*)—Racing under the 91½ cubic inch rule will be continued in Europe until the end of 1927 according to a decision of the International Racing Board just held. In principle it was decided that from Jan. 1, 1928, superchargers will not be allowed on cars competing under a piston displacement rule. It was decided that recognized distances should be limited to 50, 100, 500, 2000, 3000, 4000, 5000 kilometers or miles, and from this by stages of 5000 kilometers or miles. This is to decrease the number of records.

Louis Delage will enter three cars in the French Grand Prix after first determining to remain out as a mark of disapproval of the policy of the Automobile Club of France. Without Delage the only other entrants were three Darracqs and three Sima Violets which would have divided the prize money of 190,000 francs. Following the Delage entry it is expected Bugatti and probably Fiat will enter. The Grand Prix is fixed for June 27 on Miramas track, near Marseilles.

Rene de Knyff, chairman for the last 31 years of the racing board of the Automobile Club of France has resigned to permit of the formation of an entirely new racing board and a complete change in policy. It had been claimed that the racing board was composed of men connected with companies which no longer take an active interest in racing. DeKnyff was vice-president of the Panhard Levassor Co. He is credited with playing a more important role in automobile racing than any living man.

Set 100 Kilometer Record

Ortmans lowered the world's 100 kilometer record to 29.44 7/100 sec. in a straight-eight sleeve-valve Panhard Levassor this week. The fastest lap was made in 44 1/5 sec. an average of 128.96 m. p. h. The car used in this run was practically a stock model, the engine having higher compression and special timing. Garfield and Pelissier in a six cylinder side valve Renault of 100 by 160 mm. bore and stroke (556 cu. in.) have broken the world's 500 kilometer record in 2 hr. 48 mi. 11 6/100 seconds, the former mark being 2 hr. 53 min. 46 73/100.

Rickenbacker Export Gain

DETROIT, April 2—Rickenbacker exports promise to show a 50 per cent gain in 1926, as compared with 1925, J. L. Hibbard, export manager, reports. The demand for the six is unusually strong.

South America and Europe, with the exception of Germany, are proving fertile grounds for sales. There is no indication of a let-up in any of these countries.

Coast Economy Run Features 5 Classes

LOS ANGELES, April 2—The tenth annual economy run from Los Angeles to Camp Curry, Yosemite, which is yearly the most important event of its kind held in the West under American Automobile Association sanction and supervision, has been announced for May 21 and 22 by J. A. C. Waters, who has been appointed run manager for the fourth consecutive time.

There will be one class for fours, three classes for sixes and one class for eights, as follows:

Class 1-A for all 4-cylinder cars.

Class 2-A for 6-cylinder cars, $1000 and under, fo.b. factory.

Class 3-A for 6-cylinder cars, $1001 to $2000, f.o.b. factory.

Class 4-A for 6-cylinder cars, $2001 and over, f.o.b. factory.

Class 5-A for all 8-cylinder cars.

A grand prize cup is to be awarded the sweepstakes winner, with a smaller trophy for the victor in each class and a special cup for the enclosed car making the best economy showing.

Eldridge Specials for Indianapolis Car Race

PARIS, March 24 (*by mail*)—First foreign entries for the Indianapolis 500-mile race are two Eldridge Special cars, one of which will be driven by E. A. D. Eldridge. The second driver has not yet been appointed, but doubtless will be a well-known Englishman.

The Eldridge Specials were built in France and will be run on the Montlhery track in an attempt for world's records before being shipped to America toward the end of April. They are fitted with a four-cylinder, supercharged engine of 69 x 199 mm. bore and stroke, and have engine, gearbox and rear axle offset to the left for track racing and in order to lower the driver's seat. Single seater bodies are fitted.

Coming Feature Issues of Chilton Class Journal Publications

May—Automobile Trade Journal—Biggest Market Issue.

May 6—Motor Age—Sales and Service Reference Number.

Britain Calls Off Schneider Cup Entry

LONDON, March 24 (*by mail*)—The British Aero Club with the approval of the Air Ministry has decided that no entry on behalf of Great Britain will be made in respect of the Schneider Cup race this year. The United States, therefore, be justified in claiming the cup outright if a representative flies over the course in the autumn, providing, of course, no other countries send competitors. It is believed, however, that Great Britain will propose that the race should henceforth be held every two years, the next to take place in 1927, and in view of the sporting attitude to the United States in 1924, it is hoped that the latter will agree to waive its rights once more.

Fulton Adds Plant

MILWAUKEE, April 5—Contracts have been let by the Fulton Co., Milwaukee, manufacturer of automotive equipment, parts and accessories, for the construction of an addition to its plant in West Allis, suburb of Milwaukee. The investment in building and equipment will be in the neighborhood of $40,000. The plant is operating at full capacity without being able to gain on delivery schedules and the new facilities are urgently needed to handle contracts and orders representing the present overflow. Work will be rushed so that additional production will be available in the shortest time possible.

62 Motor Bus Lines in Wisconsin Service

MILWAUKEE, April 5—Sixty-two distinct interurban motorbus lines are now accommodating passenger traffic in Wisconsin, with ten concerns operating freight transport lines, according to a survey by the Railroad Commission of Wisconsin. The largest system is the Wisconsin Motorbus Lines, owned and operated by the Milwaukee Electric Railway & Light Co. and subsidiaries. It operates 55 buses in Milwaukee urban service and 69 cars in interurban service between Milwaukee and Waukesha, 20 miles; Watertown, 50 miles, and Madison, 85 miles. The Wisconsin Power & Light Co. is second with 26 buses operated mainly in the Fox River Valley, and third in rank is the Badger Auto Service Co. of Milwaukee, operating 23 cars between Milwaukee and the Waukesha county lake and resort region, with Oconomowoc as the terminus.

Iowa Tractors Gain

DES MOINES, April 2—Preliminary report of the department of commerce, division of the farm census for 1925, shows that Iowa has now 37,236 tractors on its farms as against 20,270 in 1920. There are also about 23,645 radio outfits on Iowa farms, the state ranking second in agricultural distribution of radios in a group of 13 states. The report also indicates 213,444 farms last year as against 213,439 five years ago.

Patent Suit Settled

CINCINNATI, April 2—Litigation between the D. L. Auld Co., Columbus, Ohio, and the Gustave Fox Co., Cincinnati, in reference to patents on a snap fastener for attaching name plates to automobile radiators, has been settled outside the courts and each firm will continue to make its particular type of fastener, as in the past.

Calendar of Coming Events

SHOWS

May—International Street and Highway Traffic Safety Exhibition, City Hall, Vienna, Austria.

May 25 — International Exhibition of Roads, Transport and Touring, Show Grounds, Argentine Rural Society, Palermo, Buenos Aires.

Sept. 7-10—6th Annual New Haven Machine Tool Exhibition.

CONVENTIONS

Apr. 14—Tire & Rim Association of America, Inc., Annual Meeting, Hollenden Hotel, Cleveland, O.

Apr. 21-23 — American Welding Society, Engineering Societies Building, New York.

April 28-30—Thirteenth National Foreign Trade Convention, Charleston, S. C., Francis Marion Hotel.

April 30—Annual Meeting of the Automobile Club of America, New York.

May 6-8—National Machine Tool Builders Association, Providence, R. I.

May 13-15—American Gear Manufacturers Association, Tenth Annual Convention, Book-Cadillac Hotel, Detroit.

May 17-21—National Electric Light Association and Electric Truck Manufacturers Association, Atlantic City, N. J.

May 28-29—National Motor Grinders and Rebuilders Association, Indianapolis.

June 8-10—Automobile Body Builders Association, Detroit, Hotel Statler.

June 14-19 — Automotive Equipment Association, Mount Royal Hotel, Montreal, Canada.

June 16-18—Thirteenth National Convention, Society of Industrial Engineers, Philadelphia, Bellevue-Stratford Hotel.

Oct. 4-8 — 45th Annual Convention, American Electric Railway Association and manufacturers' exhibit, Cleveland Public Auditorium and Annex.

RACES

Apr. 15—Fresno, Cal.

May 1 — Races at opening of new Speedway, Atlantic City.

May 10—Charlotte, N. C.

May 21-22—Tenth Annual Economy Run, Los Angeles to Camp Curry.

May 30-31 — 500-mile race, Indianapolis.

June 12 — Flag Day races, Altoona Speedway.

June 12-13—Rudge-Whitworth 24-hour stock car race, Le Mans, France.

June 27—French Grand Prix, Miramas Track, Marseilles.

Sept. 6 — Labor Day races, Altoona Speedway.

S. A. E. MEETINGS

National

June 1-4 — Semi-annual meeting, French Lick Springs, Ind.

Sectional

Apr. 13—Philadelphia.

Apr. 15—New York.

Apr. 19—Cleveland.

Apr. 22—Detroit.

Apr. 23—Chicago.

Apr. 23—Washington.